DOCUMENT RESUME

ED 195 530 SP 017 146

TITLE The Manitoba Schools' Physical Fitness Survey (1976-77).
INSTITUTION Manitoba Dept. of Education, Winnipeg.
PUB DATE 78
NOTE 100p.: For related document, see SP 017 145. May be marginally legible due to light print.

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Age Differences: Cardiovascular System: Elementary Secondary Education: Exercise: Foreign Countries: Human Body: *Physical Activity Level: *Physical Characteristics: *Physical Development: Physical Education: Psychomotor Skills: School Schedules: *Sex Differences: *State Norms: Student Participation: Time Factors (Learning)
IDENTIFIERS Canada: *Manitoba

ABSTRACT

An abundance of research relative to physical fitness and, more generally, physical education of school children, has surfaced during the past few years. Negative aspects of health and physical fitness are increasing year by year, and further evidence suggests that academic performance is negatively affected by low levels of fitness. A survey was designed to determine the physical fitness of students in Manitoba, Canada and to examine a possible relationship between student fitness and academic achievement. This data should be useful in motivating educators, students, parents, and the general public in respect to the need for optimal physical development of the child and a greater priority for physical education in the school curriculum. Data on the following items are presented in tabular or graphic form: (1) physical education time allotment: (2) student participation: (3) weight and height: (4) postural analysis: (5) overweight student analysis: (6) exercise performance: (7) growth and development patterns: (8) cardiovascular fitness: and (9) basic motor skill analysis. Age and sex differences are noted for each of the topics. Appendices present test norms, test procedures, and data collection forms. This survey should have national and international significance. The test components of cardiovascular fitness, flexibility, and body fat percentage are not usually included in physical fitness tests, but are instrumental in the development of effective physical education programs. (CJ)

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THE MANITOBA SCHOOLS' PHYSICAL FITNESS SURVEY (1976-77)

Published by:

Manitoba Department of Education

1978

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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ACKNOWLEDGEMENTS

The Manitoba Department of Education wishes to acknowledge all administrators, teachers and students for their cooperation and active participation during the Manitoba Physical Fitness Survey.

Special thanks to Departmental Physical Education Consultants, Summer S.T.E.P. Students and to Dr. B. Jones and Ms. B. Webster, for contributing so generously of their time and spending countless hours travelling to accomplish the task.

PURPOSE OF THE SURVEY

The primary objective for conducting the Manitoba Schools' Physical Fitness Survey was to develop an expanded and updated set of physical fitness norms to be used by educational authorities for immediate and longitudinal comparisons. Further, it was anticipated that the survey would, in some measure, determine the relationship of academic performance to physical fitness levels and lifestyle parameters.

Although not an objective per se, it was assumed that statistical analysis of the data and the inherent findings would be used to motivate Manitoba schools, and the public at large, to be more concerned for the physical needs of all students.

ACHIEVEMENT OF OBJECTIVES

The objectives as outlined in the Purpose of the Survey were partially achieved. The major objective of developing an expanded and updated set of physical fitness norms was fully realized. A comprehensive set of norms is contained in Appendix E (Pages 58-86) of this report.

An attempt to document a correlation between physical fitness and academic performance, within the entire sample, was ruled out, due to sampling limitations and invalid data, albeit academic rating procedures were more consistent at the elementary level. However, it should be noted that a positive correlation between academic performance and physical fitness was found to exist when a weighted sub-sample was analyzed (sub-sample data available for perusal from Consultant Services - Reference/D. Schaeffer Analysis).

RATIONALE FOR SURVEY

An abundance of research relative to physical fitness and, more generally, physical education of school children, has surfaced during the past few years.[1] Basically, we know that many of our students are physically unfit, overweight, and physically inactive. Research further tells us that students smoke too much, watch too many hours of TV and would rather ride to school than walk.[2] Negative aspects of health and physical fitness are increasing in abundance year by year, and evidence further suggests that academic performance is negatively affected by low levels of fitness.[5] What we don't know is how Manitoba compares; therefore, it is imperative that the following questions be answered, in part, through a survey:

- *How fit are Manitoba students?*
- *How many are overweight?*
- *How physically fit are students in Manitoba?*
- *Do relationships exist between the various parameters of lifestyle that affect a student's fitness and academic performance levels?*

The survey was designed to answer some of these questions, and is an attempt to find out more about the physical fitness levels of Manitoba students, so that we may deal with the problem in a knowledgeable way.

The survey should have not only provincial, but also national and international, significance, as the expansion of the test components contained in the Manitoba survey included cardiovascular, flexibility and percent body fat measurement. These are components not usually included in most available physical fitness tests, and surely not at the elementary school level.

The Manitoba Physical Fitness Survey data should be useful in motivating educators, students, parents and the general public, in respect to the need for optimal development of the physical child and a greater priority for physical education in our school curriculum.

METHODS AND PROCEDURES

Subjects:

The province of Manitoba was divided into nine geographical regions. Schools were randomly selected from each area to provide 600 test samples in each age level (K-12) within the province. A minimum of one class in every grade level was tested in each test school. Due to a small number of cancellations and weather restrictions on travel, data from sixteen city and rural schools was included in the statistical analysis. (Refer to Appendix A for test schools.)

Pilot Study:

A pilot study was carried out prior to the major survey. Seven schools were utilized as an experimental group. The purpose of the pilot study was threefold:

(a) to design administration and operational procedures to follow during the survey

(b) to allow research team members an opportunity to develop valid operational skills

(c) to standardize all test items and appropriate safety procedures.

Experimental Design:

Subjects were tested in two phases. Phase One consisted of gathering all data, except for the information needed on participation and the cardiovascular run. Data for these items was collected during Phase Two. Phase One was completed indoors, during the winter months. Phase Two was completed during May and June.

Data Collection:

(Refer to Appendix B for sample form.)

A prototype survey data collection sheet was developed to secure all required data.

The data collection form was modified following the pilot studies and during the course of the testing. A number of items were eventually eliminated due to erratic information or precluded correlation.

Test Procedures:

Refer to Appendix C.

Correspondence:

Refer to Appendix F.

RESULTS

Each item appearing on the Data Collection Form is presented individually in order. All data is presented in graphic or tabular form. T-Test, Mann-Whitney University Test and Pearson Correlation Coefficient computations were made to determine relationships between selected variables. Relationships were considered statistically significant at the .05 level or better. For those interested in greater statistical details, these are available for perusal through Consultant Services (Physical Education).

NORMS - A completed set of norms for each of the test items for both boys and girls is presented in Appendix E.

A. PHYSICAL EDUCATION TIME ALLOTMENT

Graph I displays the percent of students who receive the recommended or required time allotment of physical education in Manitoba schools.

The most recent Manitoba Department of Education Primary Physical Education Curriculum Guide (1966) states:

> *"under the authority of the Minister of Education, a minimum of 100 minutes per week, exclusive of recess time, is to be assigned for teaching of physical education in the elementary grades. The length of the physical education lesson should generally be the same as that scheduled for other subjects in the school timetable."*

More than 80% of Manitoba's elementary school children (Graph I) do not receive this 100 minute per week time allotment.

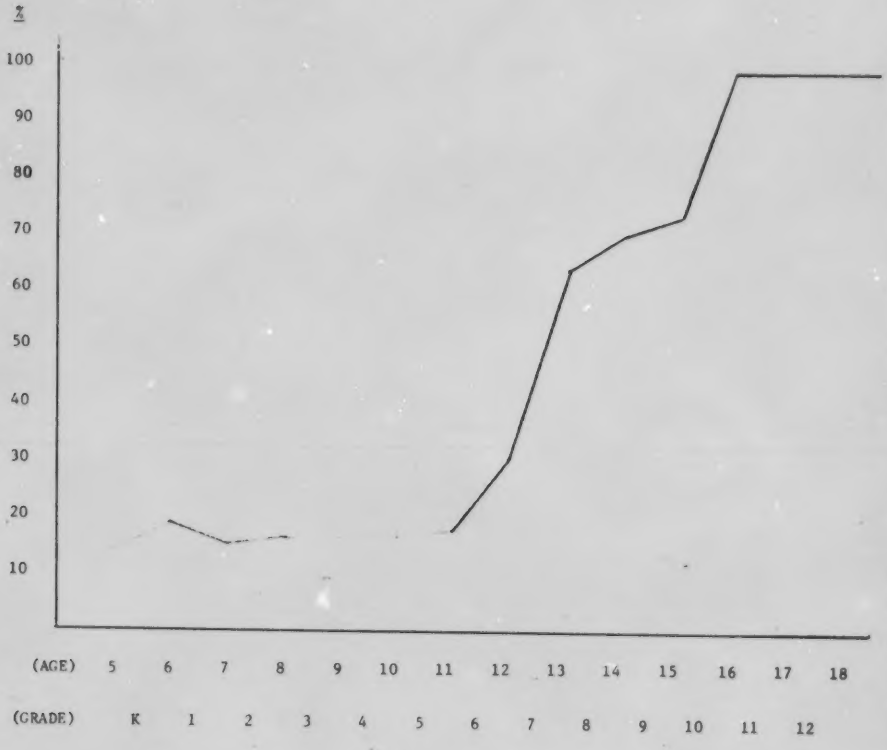
"Two periods of scheduled instruction every calendar week are the recommended minimum for Grades 7-9. A period of not less than 45 minutes will be needed to fulfill the objectives of most lessons, which will include time for changing and showering."

Graph I indicates that less than 75% of Grade 7-9 Manitoba school children receive the recommended time allotment.

Manitoba high school students' physical education time allotment is a required credit (120 hours). According to the data, all Manitoba high schools meet this requirement.

GRAPH I

PERCENT OF STUDENTS WHO RECEIVE THE RECOMMENDED OR REQUIRED TIME ALLOTMENT IN PHYSICAL EDUCATION IN MANITOBA SCHOOLS:



Many high school students complete their physical education credit in one year or less and, therefore, a great number of Grade 11 and Grade 12 students do not receive any physical education, unless the school provides an additional credit option opportunity.

At the primary level (5-9 years), students who received more physical education time consistently displayed fewer basic motor skill deficiencies. When elementary physical education time was correlated with individual physical fitness test scores, students who received more physical education displayed a higher level of physical fitness.

B. PARTICIPATION

The average Manitoba high school student receives instruction in less than 15 different physical activities (Table I). Those students who received instruction in more activities usually participated more. Girls consistently participate in a fewer number of different physical activities than do boys, both competitively and recreationally (Tables II and III).

Junior and senior high school students receive instruction in, participate in or become familiar with, less than three specific physical fitness conditioning activities (Table IV) on the average.

Statistical analysis revealed that a strong correlation ($r=.71$, p less than .01) was found between meter run times and participation among older female students. More active older female students tend to perform better in the cardiovascular run than those who are less active.

TABLE I

AVERAGE NUMBER OF ACTIVITIES, WITHIN AND OUTSIDE THE SCHOOL, IN WHICH STUDENTS HAVE RECEIVED INSTRUCTION. THE DATA DOES NOT REFLECT ACTIVITIES THAT HAVE BEEN REPEATED FROM YEAR TO YEAR.

AGE	BOYS	GIRLS
13	14.91	14.83
14	14.98	14.17
15	14.47	15.03
16	13.98	13.57
17	12.88	15.40
18	11.70	15.66

TABLE II

AVERAGE NUMBER OF ACTIVITIES IN WHICH STUDENTS PARTICIPATED NONCOMPETITIVELY IN THEIR LEISURE TIME DURING THE PAST YEAR (1976-77)

AGE	BOYS	GIRLS
13	15.66	13.76
14	14.49	12.74
15	13.40	11.18
16	13.58	11.01
17	14.66	10.79
18	10.88	9.13

TABLE III

AVERAGE NUMBER OF ACTIVITIES STUDENTS PARTICIPATE IN AN ORGANIZED COMPETITIVE SITUATION DURING THE PAST YEAR (1976-77) THE MEANS REFLECT ACTIVITIES ORGANIZED BY THE SCHOOL AND COMMUNITY.

AGE	BOYS	GIRLS
13	4.37	4.22
14	7.88	3.29
15	3.53	3.42
16	3.86	3.77
17	6.31	4.08
18	3.41	3.20

TABLE IV

AVERAGE NUMBER OF SPECIFIC PHYSICAL FITNESS AND TESTING PROGRAMS STUDENTS HAVE RECEIVED INSTRUCTION IN, PARTICIPATED IN OR HAVE BEEN FAMILIARIZED WITH

AGE	BOYS	GIRLS
13	2.52	2.69
14	2.53	1.65
15	2.40	4.15
16	2.92	2.28
17	2.49	5.60
18	1.85	1.84

C. WEIGHT AND HEIGHT

Graphs II and III display the growth patterns of Manitoba school children as being normal, when compared to other curves.

At ages 13 and 14, girls' height and weight development begins to slow down; whereas, boys continue to become taller and heavier.

D. POSTURAL ANALYSIS

Graph IV indicates the percent of students in Manitoba schools with postural deviations. The number of students with postural deviations increases with age.

Posture did not correlate with any of the other parameters that were studied.

E. OVERWEIGHT STUDENT ANALYSIS

Graph V displays the percent of Manitoba school students that are overweight.

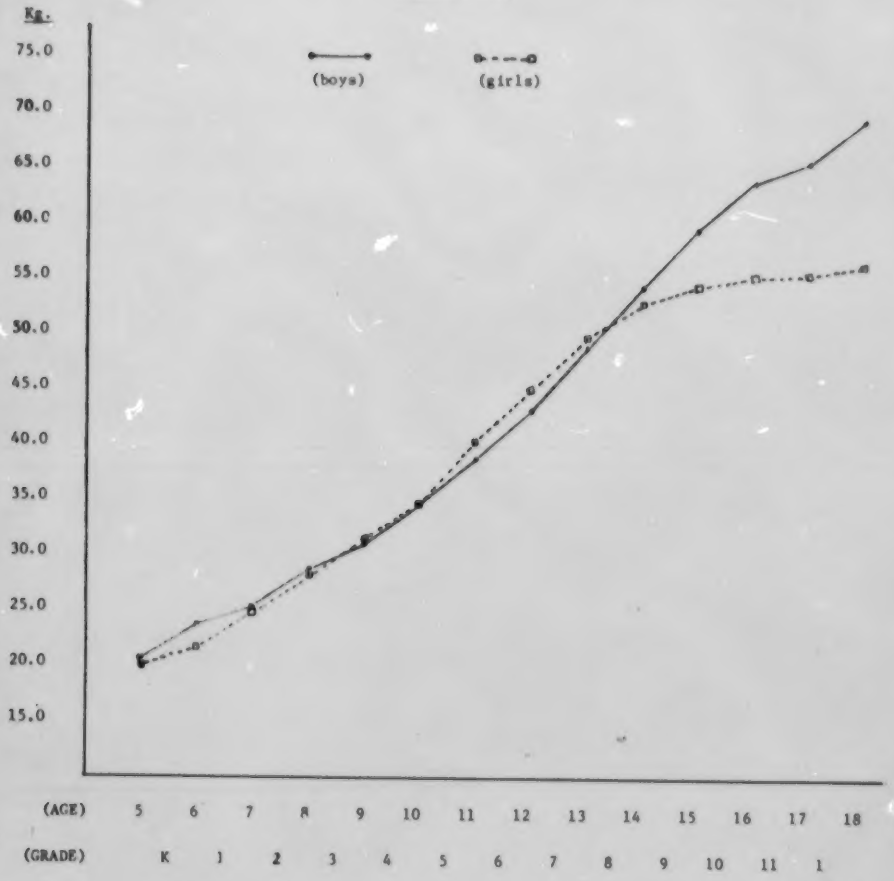
More girls are overweight than boys, at each age level.

At the elementary level, the number of overweight boys and girls increases gradually. From age 12 to 18 years, the number of boys classified as being overweight continues to increase at a constant rate. However, at age 13, the overweight girls experience a dramatic rise in their numbers until, at age 17, 74% (based on a sample of 3.5%*) of Manitoba high school girls are overweight.

*Statistics Canada Report, September, 1976/6000 females, age 17, in Manitoba Schools

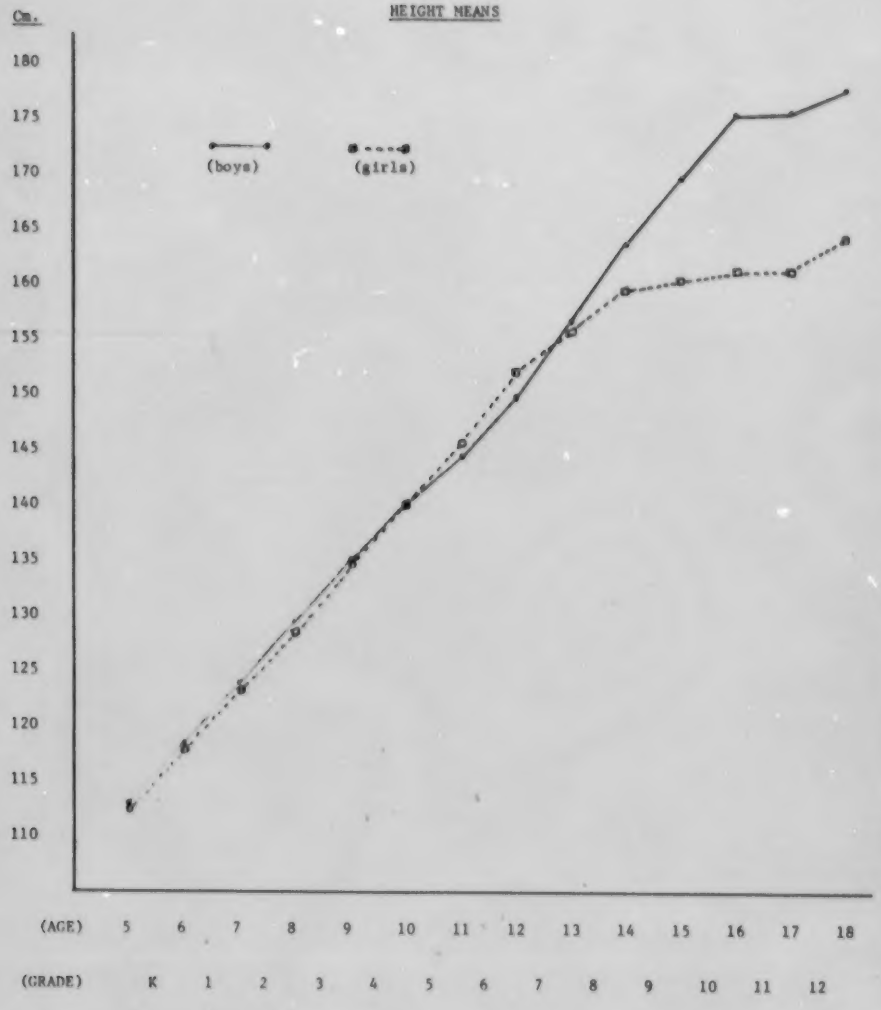
GRAPH II

WEIGHT MEANS



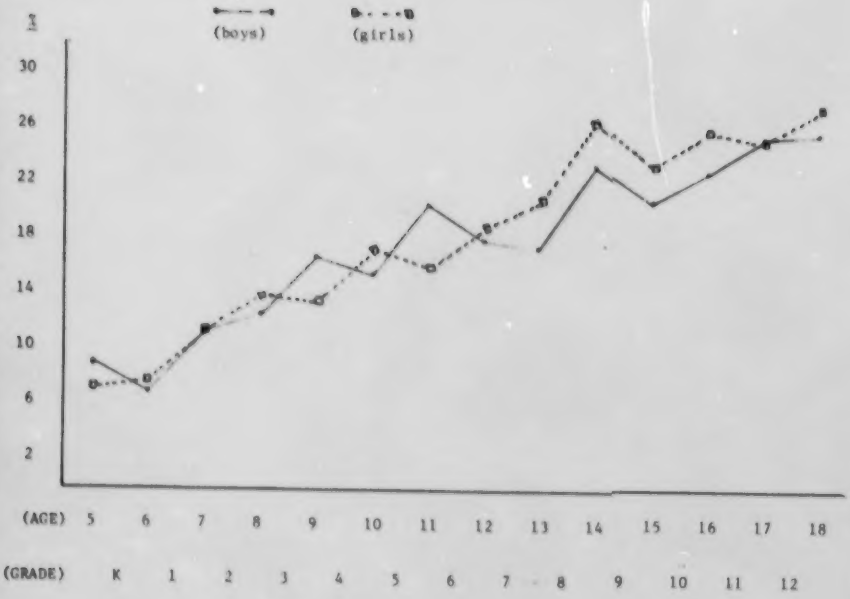
GRAPH III

HEIGHT MEANS



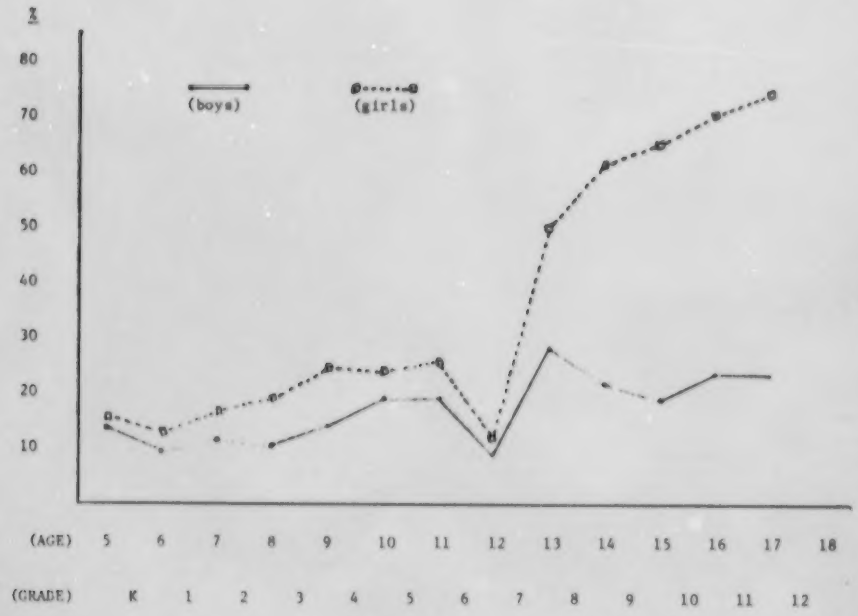
GRAPH IV

PERCENT OF STUDENTS WITH POSTURAL DEVIATIONS



GRAPH V

PERCENT OF STUDENTS THAT ARE OVERWEIGHT



F. ONE MINUTE SPEED SIT-UPS, FLEXED ARM HANG, AGILITY RUN AND SIT AND REACH ANALYSIS

The analysis of students' performances in one minute speed sit-ups, flexed arm hang, agility shuttle run and sit and reach flexibility related the following (Graphs VI - IX):

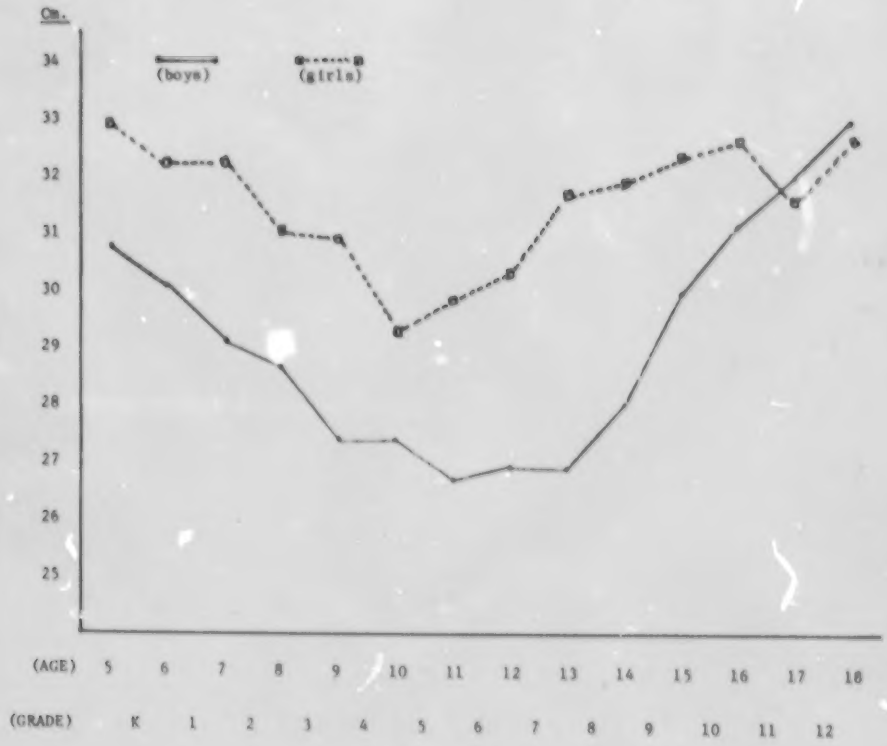
1. Generally, boys are superior in flexed arm hang, sit-ups and agility run in each age group after 7 years of age. Girls are superior in flexibility until 16 years of age.
2. As children get older, differences between boys and girls become greater, with the exception of flexibility. Boys become consistently fitter as they grow older. Generally, girls' best performances occur by age 13, followed by a levelling off and a decline.

When parameter relations were studied, the following statistically significant, positive correlations were evident:

1. As skinfold measure increased, performance decreased, except in sit and reach test.
2. Students who performed well in one of the above four items tended to perform well in the other three.
3. Students who ranked higher academically were more physically fit.
4. Primary students who scored higher in flexed arm hang, sit-ups and agility run possessed fewer basic motor skill deficiencies.

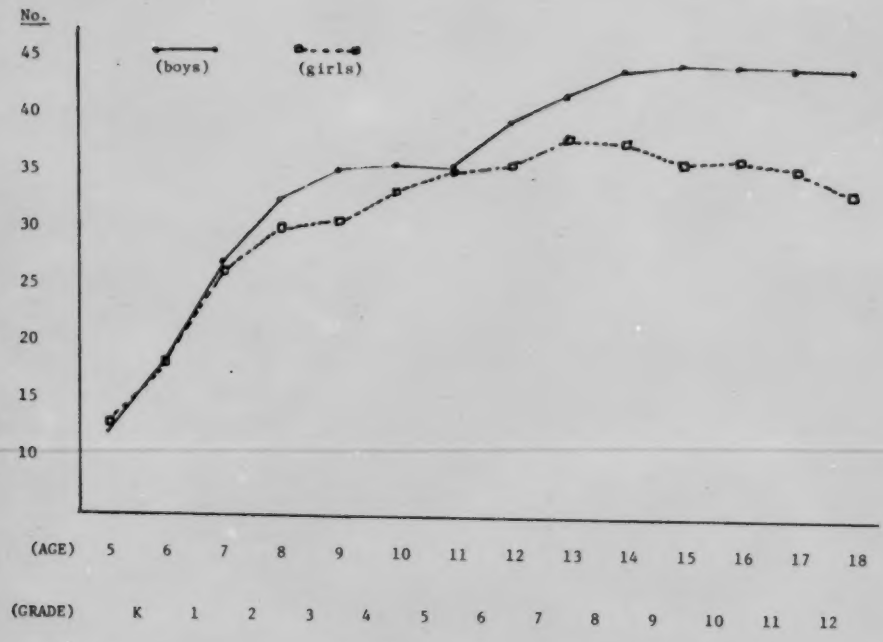
GRAPH VI

FLEXIBILITY SIT AND REACH PERFORMANCE MEANS



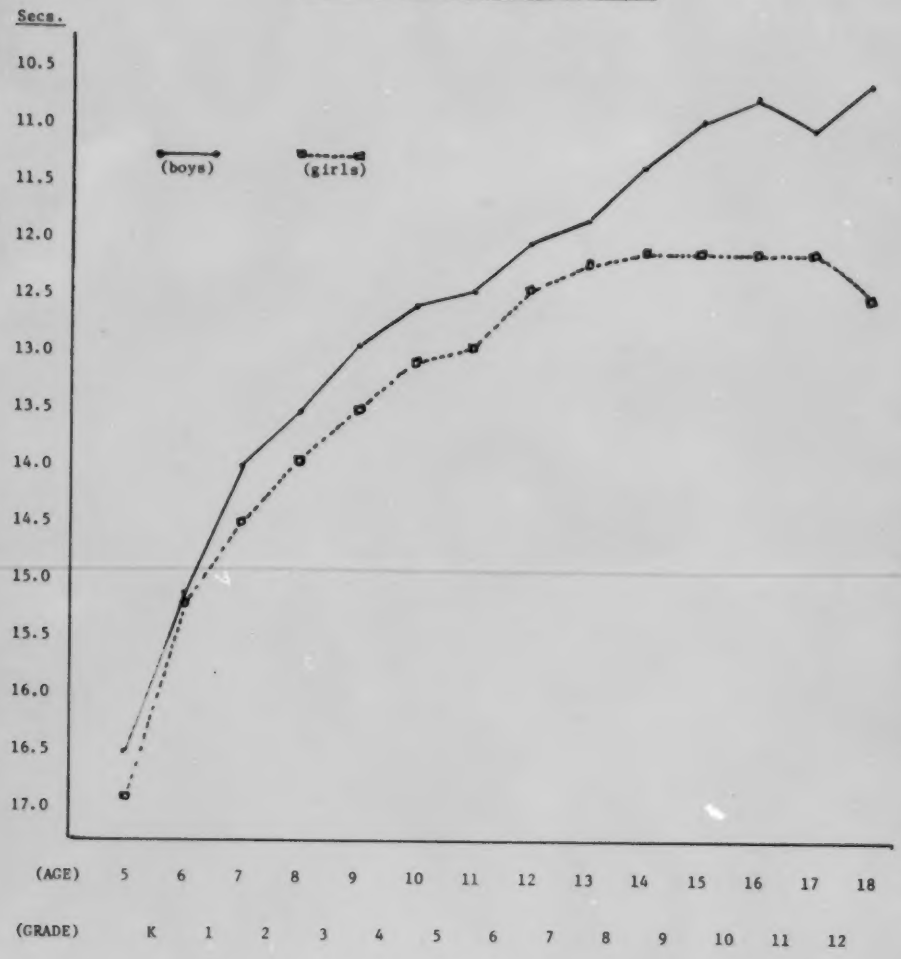
GRAPH VII

ONE MINUTE SPEED SIT-UP PERFORMANCE MEANS



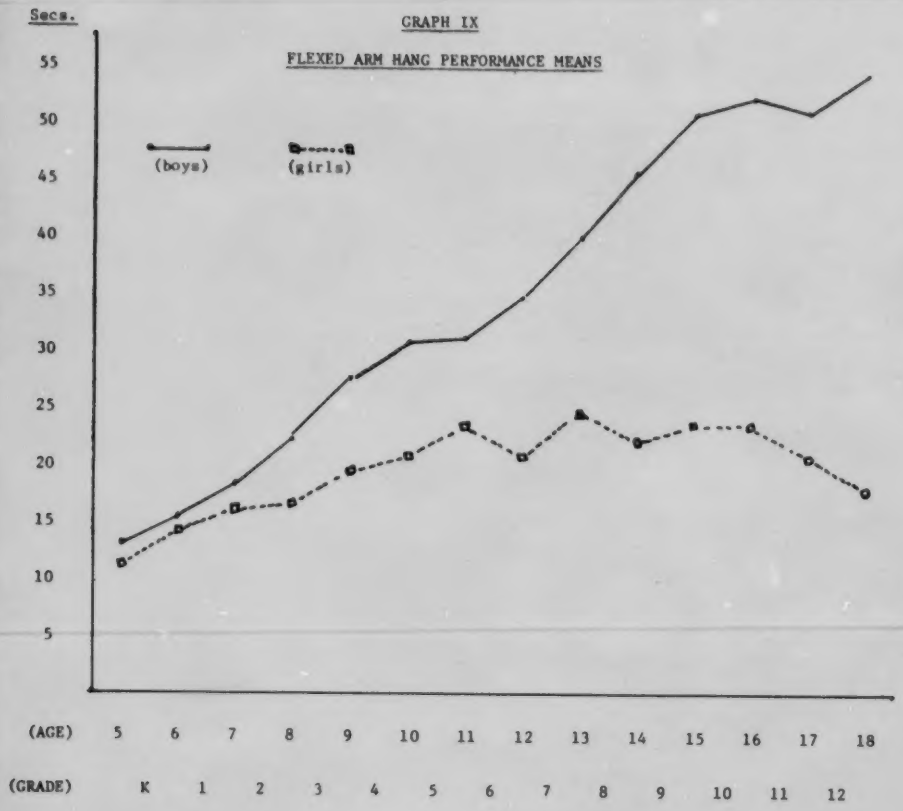
GRAPH VIII

AGILITY SHUTTLE RUN PERFORMANCE MEANS



GRAPH IX

FLEXED ARM HANG PERFORMANCE MEANS



G. GROWTH AND DEVELOPMENT PATTERNS

Correlations between age and physical fitness test scores were computed to determine if the physical fitness performances of Manitoba school children follow expected physiological growth and development patterns. (Table V)

Height and weight measures show nearly perfect correlations with age throughout the 5-18 year age range for both sexes. The fitness performances, however, do not display optimal growth and development patterns. Fitness tests reflect development more strongly for boys than for girls, and more strongly for younger children than older children. Female students tend to stop showing improvement with age after the prepubertal years. Boys continue to show age-related improvement through the age of 18.

H. CARDIOVASCULAR RUN PERFORMANCE ANALYSIS

At all ages, boys' run performances are superior to girls', except at ages 5 and 10. Boys' performances continue to improve until age 16, where a decline is evidenced. Girls, however, begin their decline at age 10.

Students with better run performances scored significantly higher in the flexed arm hang test, had better qualified physical education teachers and received a greater time allotment in physical education. Ages 5 to 12 also had better performances in the agility run test. Ages 13 to 18 displayed a greater degree of flexibility, as determined by the sit and reach test. (Graphs X - XII)

TABLE V

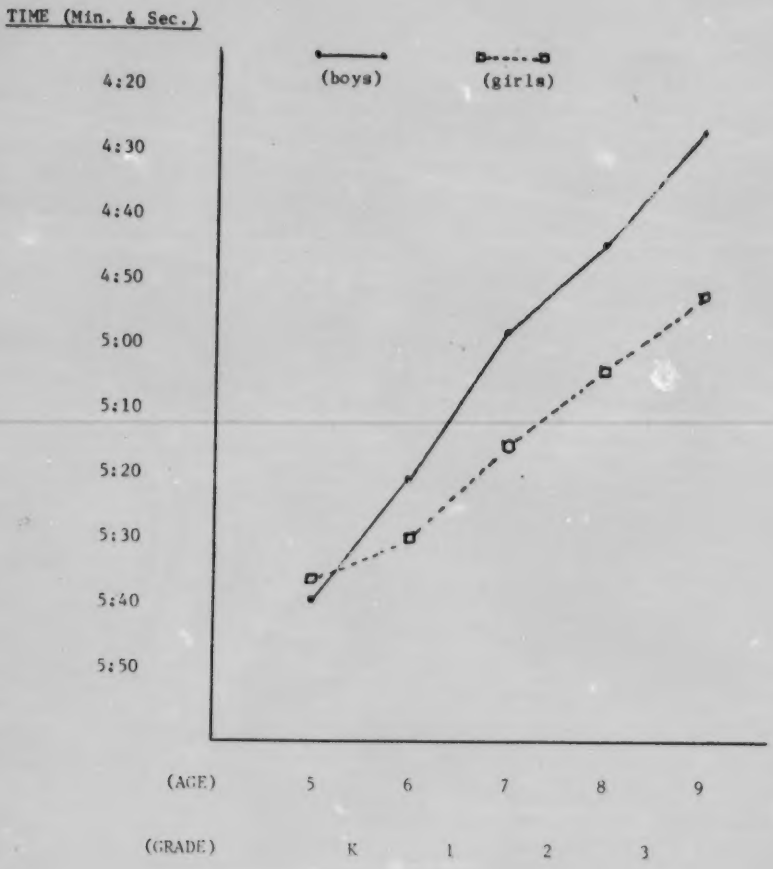
RANK CORRELATIONS BETWEEN AGE AND MEDIAN SCORES

	BOYS	GIRLS
Height	1.00	.99
Weight	1.00	.99
Agility	.99	.74
Sit-ups	.88	.64
Flexed Arm Hang	.94	.57+
Cardiovascular Meter Run	.79	.07+
Sit and Reach	.11+	.00+

+ denotes not satisfactory validity

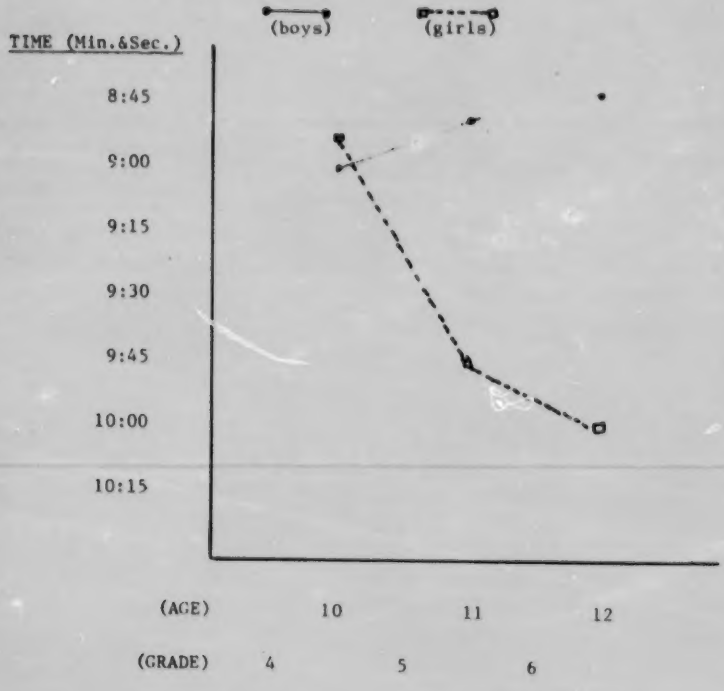
GRAPH X

800 METER RUN PERFORMANCE MEANS



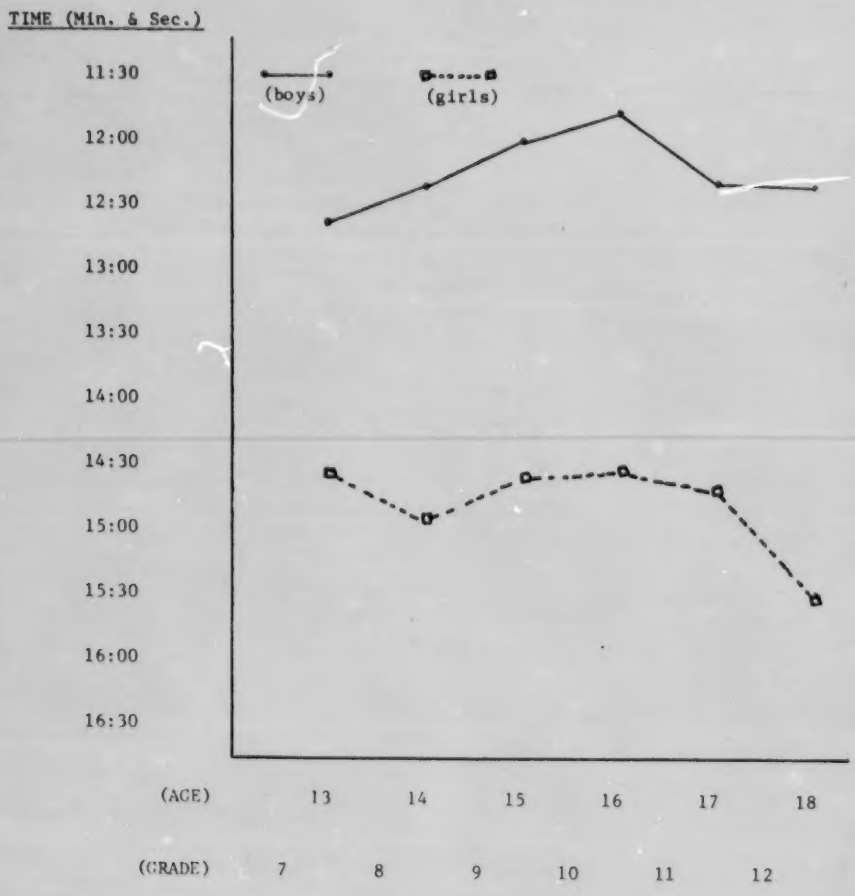
GRAPH XI

1600 METER RUN PERFORMANCE MEANS



GRAPH XII

2400 METER RUN PERFORMANCE MEANS



I. ANALYSIS OF STUDENTS WHO WALK OR RIDE TO SCHOOL

Graph XIII displays the fact that 20-40% of all Manitoba school children ride to and from school daily. According to our data, the number of riders increases with age.

Statistical analysis has shown that walkers tended to possess a higher level of cardiovascular physical fitness. Primary school children who walk to school display fewer basic motor skill deficiencies.

J. BASIC MOTOR SKILL ANALYSIS

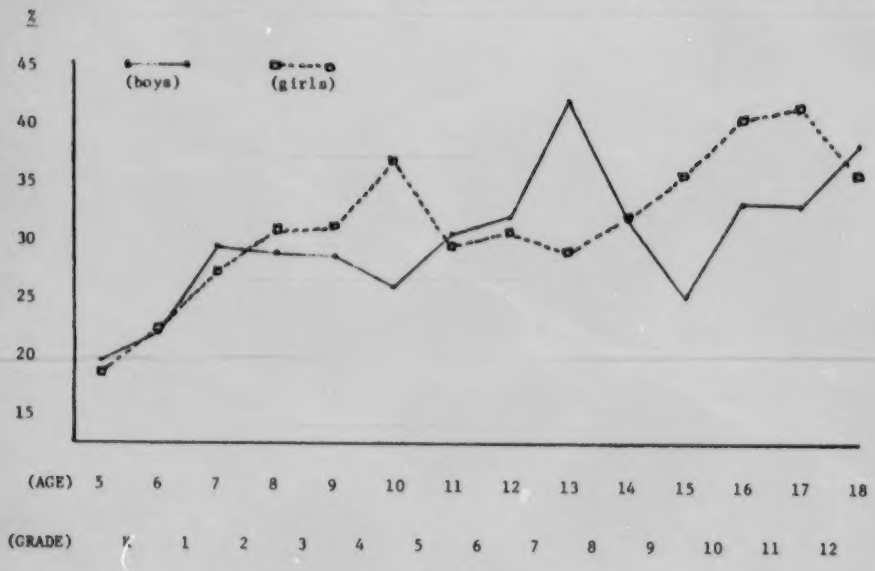
Graph XIV displays the percent of students with identifiable basic motor skill deficiencies, 5-9 years, as determined by the modified screening test, identified in Appendix B, Page 49, lower portion.

Boys consistently have more basic motor problems than girls. The number of deficiencies decreases with age, but approximately 8% of nine year old school children remain with problems.

Statistical analysis indicates that primary students who have fewer deficiencies receive more physical education time allotment, were generally more physically fit and generally do not ride to school.

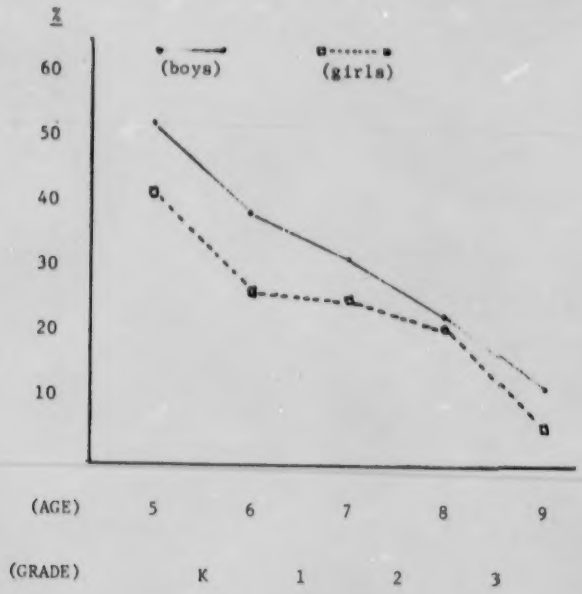
GRAPH XIII

PERCENT OF STUDENTS WHO RIDE TO SCHOOL



GRAPH XIV

PERCENT OF STUDENTS WITH IDENTIFIABLE GROSS BASIC MOTOR SKILL DEFICIENCIES

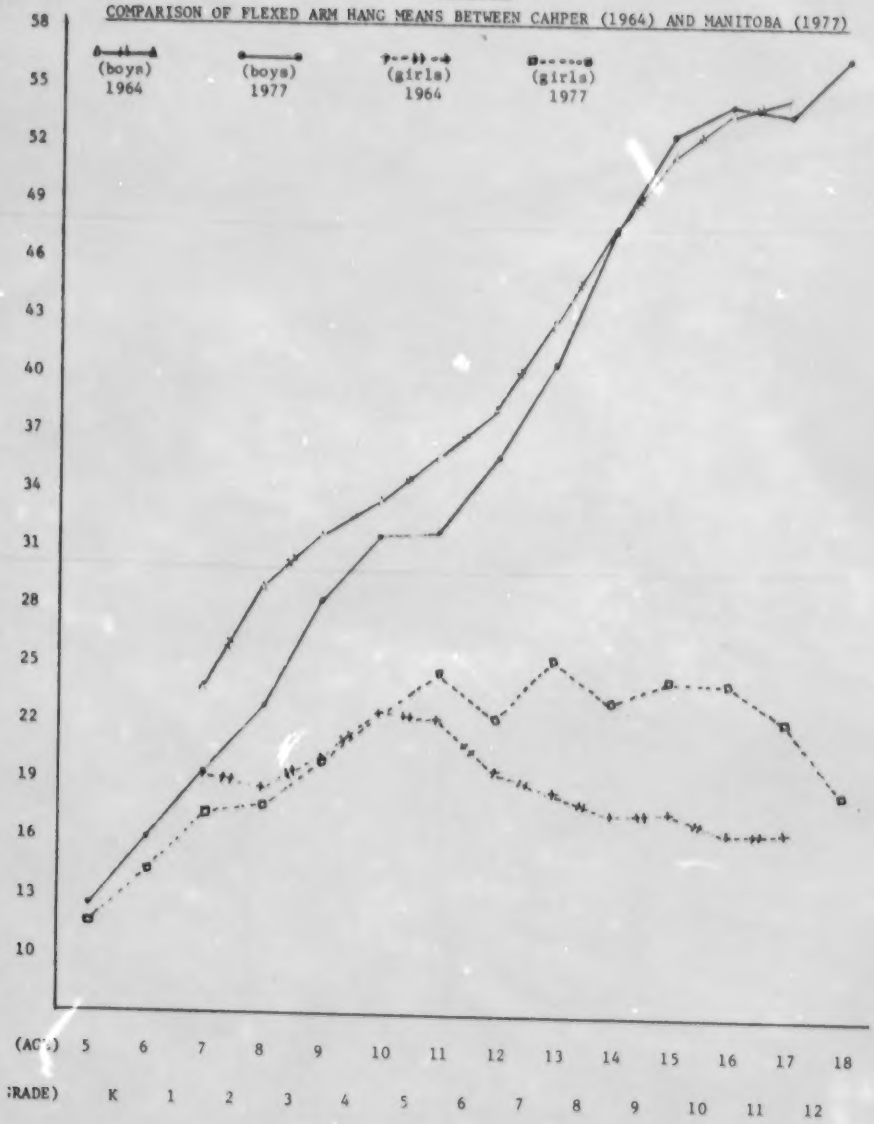


K. TEST COMPARISON ANALYSIS - 1964, 1967/70, 1977

Comparing means between three items of the Manitoba Schools' Physical Fitness Survey of 1977 with the C.A.H.P.E.R. Fitness Performance Tables of 1964 and the Manitoba Physical and Motor Fitness Performance Test Tables of 1967/70, have shown that the physical fitness levels of elementary school aged boys and girls in Manitoba have remained the same or declined. High school girls appear to be more fit than their counterparts of 1964 and 1967. High school boys have not changed their status. Therefore, with the exception of high school girls, the physical fitness of our school children has not improved during the last 14 years. (Graphs XV - XVII) Speculation suggests that life-styles have deteriorated to such a degree that regardless of the program it is difficult to counter-balance negative lifestyles.

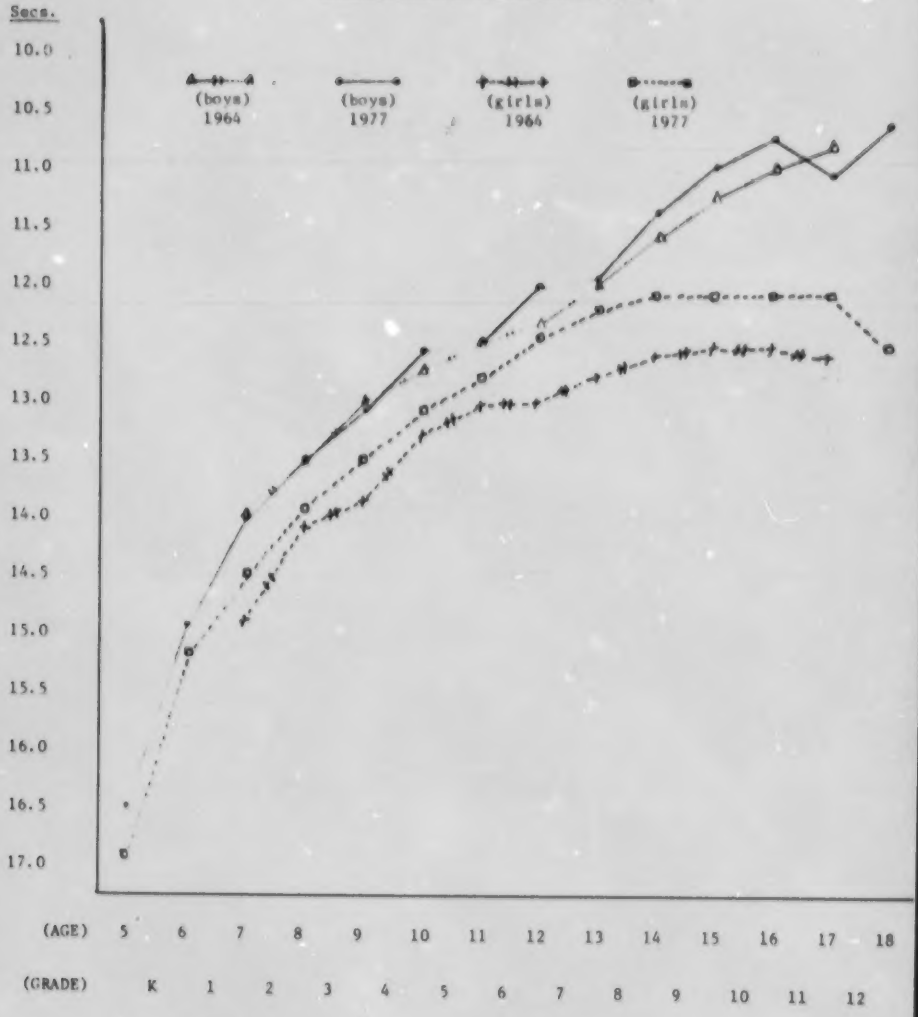
GRAPH XV

COMPARISON OF FLEXED ARM HANG MEANS BETWEEN CAHPER (1964) AND MANITOBA (1977)



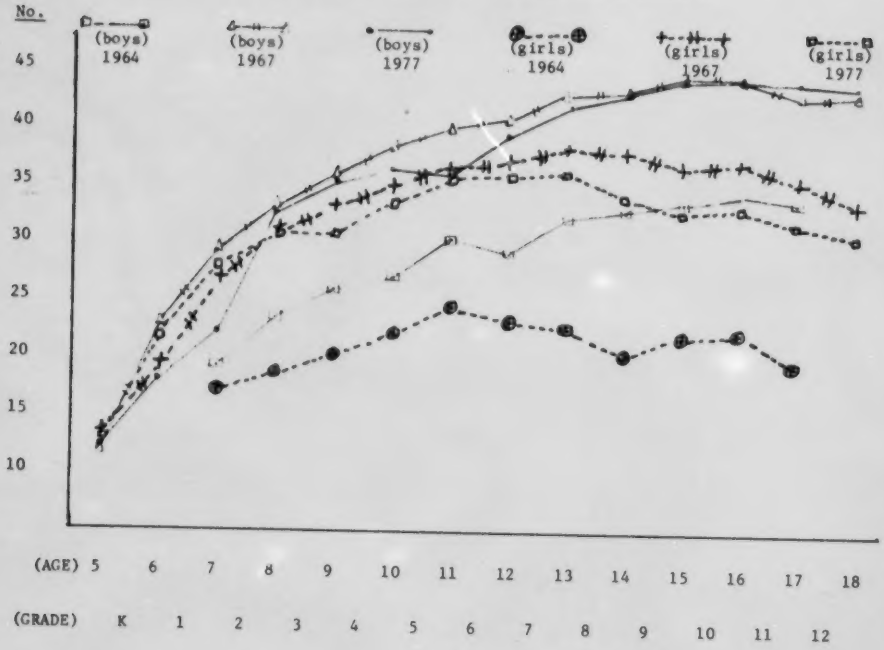
GRAPH XVI

COMPARISON OF AGILITY SHUTTLE RUN MEANS BETWEEN MANITOBA (1977) AND CAHPER (1964)



GRAPH XVII

COMPARISON OF ONE MINUTE SIT-UP MEANS BETWEEN
MANITOBA (1967) AND MANITOBA (1977) AND CAHPER (1964)



CONCLUSIONS

Physical Education Time Allotment:

The Department of Education Curriculum Guide (1966) requires that Manitoba elementary school children receive a minimum of 100 minutes per week of physical education instruction. Junior high students should receive at least 90 minutes per week.

This study substantiates that 75-80% of Manitoba (K-9) students do not receive the time allotments prescribed by the Department of Education. The disparity between the requirement and the time provided takes on added significance when one considers that current physical education curriculum guides are somewhat outdated, and that in 1975 the Physical Education Working Group recommended that all students (K-12) receive a physical education time allotment of 200 minutes per week. This position was supported by a number of individuals and agencies who have recommended daily physical education; i.e., Manitoba Physical Education Teachers Association, Dr. J. Kos (Chiropractor), Manitoba Physical Education Supervisors Association, Manitoba Teachers Society, Manitoba Medical Association, and the Canadian Association for Health, Physical Education and Recreation (National).

High schools in Manitoba are required to provide one credit or 120 hours of physical education instruction for all students, during Grades 10-12. High schools appear to satisfy this requirement. However, since most high school students complete their physical education credit in one year or less, a great number of Grade 11 and 12 students do not receive physical education. Some schools do provide additional credit courses. Physical educators and many health allied professionals agree that physical education should be provided every year during the three year high school program.

Participation:

Instruction of Activities:

Table I (p. 12) displays the average number of activities in which students have received instruction. If this trend were projected for a six year period, students receive instruction in approximately 80 sports and activities. However, it is a well-known fact that there is serious duplication and most graduates will have received instruction in approximately 20 activities over this period of time. Therefore, it is suggested that the Physical Education Curriculum Committees address themselves to appropriate scoping and sequencing of concepts, activities and sports, so that by the time a student graduates from high school, he/she will have received instruction in a greater variety of activities, many of which are lifelong in application.

Recreation:

Boys participate more on their own leisure time than girls and, generally speaking, student participation is related to the number of activities in which they receive instruction. (Tables I and II - pp. 12 and 13)

Schools should encourage all students to participate regularly, and the general value of participation must be stressed.

Participation/Competition:

Girls participate competitively in fewer activities than boys; however, the difference is not significant. Schools should continue to provide quality intramural and interschool programs throughout the year. More emphasis should be placed on developing these programs, using a greater variety of activities. An attempt should be made to develop activity programs, whereby all students can participate fully.

Specific Physical Fitness and Testing Programs:

The average student in Manitoba receives instruction in less than three specific fitness training and testing programs. Considering there is an extensive variety of programs available, greater emphasis will be necessary in the training area. A revised Physical Education Curriculum should require instruction in a variety of the fitness training methods.

Overweight/Nutrition:

Being overweight or obese is, without doubt, the commonest nutritional disorder of western civilization and perhaps one of the most dangerous.[3] Uncontrolled weight reduces the capacity for physical activity, impedes performing a variety of tasks, predisposes the individual to a number of diseases and may shorten life.

Diseases which are more common in obese individuals include diabetes, coronary heart problems, cancer of the uterus, gout, chronic bronchitis, gall bladder disease and arthritis. These maladies are more severe in the overweight.

The greater the degree of obesity, the shorter is the life expectancy. According to one insurance company in the U.S.A., a man of 45 who is 25 pounds above the average weight for his age and height, has a 25% reduction in life expectancy. Obesity in women is reportedly not as dangerous, although the same complications occur.

In October, 1977, delegates at a Conference on Obesity and the American Public were told that: "the type of obesity that begins in childhood is the most resistant to treatment. Obese infants are apt to become obese adults." Further, a recent report from Saskatoon suggested that obesity is increasing in school children in Canada and a recent Nutrition Canada Study found that the difference between the overweight and non-overweight is the activity level, not the caloric intake.

This study has discovered that more and more children become overweight as they grow older. More girls are overweight than boys. At age 17, 74% of Manitoba high school girls are overweight. These statistics (Graph II - p. 17) should be of major concern to all educators. All school children (K-12) should receive instruction in nutrition and body weight control, preferably through more physical education. Schools should restrict the sale of non-nutritious foods, which add to an already serious problem--nutrition and obesity. School cafeterias, where in operation, should inform students of the nutrient and caloric values of foods and beverages they provide or offer for sale.

Student body fat status should be assessed periodically and overweight students should be strongly encouraged to lose weight. Parents should also be encouraged to become aware of their children's body weight control problems. Physical Education Curriculum Committees should address themselves to the overweight problem and reflect it within the fitness objectives.

Physical Fitness Components - Run, Sit-ups, Sit & Reach, Agility, Flexed Arm Hang:

Physical Education Curriculum Committees should place a greater emphasis on physical fitness. Physical education programs must place a greater emphasis on flexibility, upper body muscular strength and endurance, and cardiovascular endurance. A concerted effort must be made to develop and maintain maximum levels of circulo-respiratory endurance. Girls should be motivated to participate in endurance activities, particularly as they become older, since their fitness levels begin to deteriorate after 11 years of age. Physical fitness theory should be effectively presented to all school children (K-12).

Basic Motor Skills:

Due to the large number of primary school children in our schools who display basic motor skill deficiencies (Graph XIV - p. 33), all primary schools should administer basic motor skill screening tests and develop follow-up remedial programs.

Posture:

According to the data in this study, more than 15% of Manitoba school children demonstrate observable postural deviations. The number of students with abnormal posture increases with age.

According to Kraus et al,[4] under-exercise can result in muscular weakness, tightness and tension that often lead to postural defects or localized muscular pain, especially in the lower back. These researchers found that 80% of all back problems were found to be muscular in origin. Exercise fosters muscle strength and endurance as well as joint stability. Thus, regular exercise can be a critical variable in the prevention of, and recovery from, or rehabilitation of, low back pain and other neuromuscular disorders. Here, the implications for physical education are evident.

Teachers should be encouraged to become conversant with postural problems. It would be highly desirable to screen all students to identify postural deviations and to develop and provide opportunities for remediation. Students with gross deviations should be referred to a doctor before any remediative program is initiated.

APPENDICES

APPENDIX A

TEST SCHOOLS

MANITOBA SCHOOLS INVOLVED IN THE MANITOBA PHYSICAL FITNESS SURVEY

CODE	SCHOOL	SCHOOL DIVISION	LOCATION	GRADES
1	Ralph Brown	Winnipeg #1	Winnipeg	N-6
2	Lansdowne	Winnipeg #1	Winnipeg	K-6
3	Robertson	Winnipeg #1	Winnipeg	K-6
4	Sisler H.S.	Winnipeg #1	Winnipeg	7-12
5	West Kildonan Coll.	Seven Oaks #10	Winnipeg	10-12
6	Munroe Jr. H.	River East #9	Winnipeg	7-9
7	Prince Charles	Portage la Prairie #24	Portage la Prairie	K-9
8	Portage Coll.	Portage la Prairie #24	Portage la Prairie	10-12
9	Inwood	Lakeshore #23	Inwood	K-9
10	Riverton Elem.	Evergreen #22	Riverton	K-6
11	Riverton Coll.	Evergreen #22	Riverton	7-12
12	Roblin Elem.	Intermountain #36	Roblin	K-6
13	Goose Lake H.S.	Intermountain #36	Roblin	7-12
14	Pinawa Sec.	Whiteshell #2408	Pinawa	7-12
15	W. B. Lewis	Whiteshell #2408	Pinawa	K-6
16	F. W. Gilbert	Whiteshell #2408	Pinawa	K-6
17	Shevchenko	Boundary #16	Vita	1-12
18	Glenboro	Tiger Hills #29	Glenboro	K-12
19	Hartney Elem.	Souris Valley #42	Hartney	K-5
20	Hartney Coll.	Souris Valley #42	Hartney	6-12
21	Elkhorn	Fort la Bosse #41	Elkhorn	K-12
22	Gypsumville	Gypsumville #1612	Gypsumville	1-12
23	Grand Rapids	Frontier #48	Grand Rapids	K-11
24	Rossville	Frontier #48	Norway House	N-11
25	Jack River	Frontier #48	Norway House	N-8
26	W. C. Miller Coll.	Rhineland #18	Altona	9-12
27	Wabowden	Frontier #48	Wabowden	N-11
28	Deerwood	Mystery Lake #2355	Thompson	K-7
29	R. D. Parker Coll.	Mystery Lake #2355	Thompson	8-12
30	Scott Bateman Jr. H.	Kelsey #45	The Pas	7-8
31	Kelsey Elem.	Kelsey #45	The Pas	K-6
32	Margaret Barbour Coll.	Kelsey #45	The Pas	9-12
33	Beaumont	Assiniboine South #3	Winnipeg	K-8
34	Westdale Jr. H.	Assiniboine South #3	Winnipeg	7-9
35	La Salle	Seine River #14	La Salle	1-6
36	Waskada	Antler River #43	Waskada	K-12
37	Tilston Elem.	Antler River #43	Tilston	1-6
38	Deloraine Elem.	Antler River #43	Deloraine	K-6
39	Deloraine Coll.	Antler River #43	Deloraine	7-12
40	Melita	Antler River #43	Melita	K-12
41	Pierson	Antler River #43	Pierson	K-12
42	Dandurand	Mountain #28	Haywood	K-8
43	St. Claude	Mountain #28	St. Claude	K-12
44	Mariapolis	Mountain #28	Mariapolis	K-8
45	Ste. Marie	Mountain #28	Bruxelles	K-8
46	St. Alphonse Elem.	Mountain #28	St. Alphonse	1-8
47	Beliveau Jr. H.	St. Boniface #4	Winnipeg	7-9

MANITOBA SCHOOLS INVOLVED IN THE MANITOBA PHYSICAL FITNESS SURVEY

CODE	SCHOOL	SCHOOL DIVISION	LOCATION	GRADES
48	General Byng	Fort Garry #5	Winnipeg	K-9
49	General Vanier	St. Boniface #4	Winnipeg	K-6
50	Notre Dame Coll.	Mountain #28	Notre Dame de Lourdes	7-12
51	Notre Dame Elem.	Mountain #28	Notre Dame de Lourdes	K-6
52	Somerset Coll.	Mountain #28	Somerset	7-12
53	Richard	Mountain #28	Somerset	K-6
54	St. Leon Elem.	Mountain #28	St. Leon	1-8
55	Swan Lake	Mountain #28	Swan Lake	1-8
56	Bannatyne	St. James-Assiniboia #2	Winnipeg	K-6
57	St. Avila	Fort Garry #5	Winnipeg	K-6
58	Phoenix	St. James-Assiniboia #2	Winnipeg	K-5
59	Wolseley	Winnipeg #1	Winnipeg	K-6
60	Riverview	Winnipeg #1	Winnipeg	K-6
61	Florence Nightingale	Winnipeg #1	Winnipeg	K-6
62	Greenway	Winnipeg #1	Winnipeg	2-6
63	Grosvenor	Winnipeg #1	Winnipeg	K-6
64	Champlain	Winnipeg #1	Winnipeg	K-6
65	Wellington	Winnipeg #1	Winnipeg	N-6
66	William Osler	Winnipeg #1	Winnipeg	K-6
67	Pinkham	Winnipeg #1	Winnipeg	N-6
68	King Edward	Winnipeg #1	Winnipeg	N-6
69	William Whyte	Winnipeg #1	Winnipeg	N-6
70	Leaf Rapids Ed. Center	Leaf Rapids #2460	Leaf Rapids	K-12

APPENDIX B

DATA COLLECTION FORM

MANITOBA SCHOOLS' PHYSICAL FITNESS SURVEY - 76/77

Name _____ Date _____

School Code ☐☐

School Div./Dist. ☐☐

Frequency of Phys. Ed? Per week/Per cycle? ☐☒☐

Length of Phys. Ed. class? ☐☐☐

Age ☐☐

Grade ☐☐

Sex A ☐ Male B ☐ Female

Academic Ranking: A ☐ lower 50% B ☐ midline C ☐ upper 50%

Student Employment: A ☐ Passive Work B ☐ Physical Work

Smoke: A ☐ Yes

Participation: Instructional Program ☐☐

Recreation ☐☐

League ☐☐

Conditioning & Fitness Testing ☐☐

Youth Programs ☐☐

Personal Fitness Evaluation

Wt. (kg.) ☐☐.☐

Ht. (cm.) ☐☐☐

Posture: A ☐ Yes

Skinfold (m.) ☐☐☐.☐

Skinfold (%) ☐☐

ow A ☐ Yes

Sit and Reach (cm.) ☐☐

Sit-ups ☐☐

Agility Run (sec.) ☐☐.☐

Flex Arm Hang (sec.) ☐☐☐.☐

Meter Run (min.) ☐☐.☐☐

Basic Motor Skill Evaluation (K-3 Only)

Balance: Static Right ☐

Static Left ☐

Dynamic ☐

Jumping ☐

Hopping: Right ☐

Left ☐

Catching ☐

Teacher Qualification: A ☐ Phys. Ed. Degree B ☐ Teacher Cert. and Courses C ☐ Teacher Cert. - ½ Course

PARTICIPATION RECORD

INSTRUCTIONAL PROGRAMS		RECREATION		LEAGUE	CONDITIONING AND FITNESS TESTING	YOUTH PROGRAMS
Archery	Modified Teams Games & Sports	Archery	Modified Teams Games & Sports	Archery	AAHPER	Beavers
Badminton	Native Dance	Badminton	Native Dance	Badminton	Aerobics	Brownies
Ballet & Tap	Orienteering	Ballet & Tap	Orienteering	Basketball	Calisthenics	C.G.I.T.
Ballroom Dance	Paddle Tennis	Ballroom Dance	Paddle Tennis	Borden Ball	Canada Fitness Award (CAHPER)	Cadets
Basketball	Ringette	Basketball	Ringette	Bowling	Canada Home Fitness Test	Cubs
Baton	Rugby	Baton	Rugby	Broomball	Circuit Training	4-H
Borden Ball	Rhythmic Gymnastics	Borden Ball	Rhythmic Gymnastics	Curling	Cooper's 12 Min. Run	Guides
Bowling	Riflery	Bowling	Riflery	Field Hockey	FITNESC	Music
Broomball	Sailing	Broomball	Sailing	Fieldball	Fitness Club	Religious Clubs
Calisthenics	Scuba	Calisthenics	Scuba	Floor Hockey	Gross Motor	Scouts
Camping	Skating	Camping	Skating	Football -Flag -Tackle -Touch	Interval Running	
Canoeing	Soccer	Canoeing	Soccer	Golf	Iowa	
Circuit Training	Social Dance	Circuit Training	Social Dance	Gymnastics	Isometrics	
Creative Dance	Speedball	Creative Dance	Speedball	Handball	Isotonic	
Curling	Speed Skating	Curling	Speed Skating	Hockey	Jogging	
Cycling	Square Dance	Cycling	Square Dance	Lacrosse	Krause-Weber	
Fencing	Squash	Fencing	Squash	Modified Team Games & Sports	Man. Fitness Performance	
Field Hockey	Swimming	Field Hockey	Swimming	Orienteering	Partner Contests	
Fieldball	Synchronized Swimming	Fieldball	Synchronized Swimming	Ringette	Personal Design	
Figure Skating	Tap Dance	Figure Skating	Tap Dance	Rugby	Renu	
Floor Hockey	Teamball	Floor Hockey	Teamball	Soccer	Strengthalon	
Folk Dance	Tennis	Folk Dance	Tennis	Speedball	Super Sets	
Football -Flag -Tackle -Touch	Track & Field	Football -Flag -Tackle -Touch	Track & Field	Squash	Weight Training	
Free Exercise	Volleyball	Free Exercise	Volleyball	Team Handball	Young Olympian Program	
Golf	Water Polo	Golf	Water Polo	Tennis		
Gym Apparatus	Water Ski	Gym Apparatus	Water Ski	Track & Field		
Gymnastics	Weightlifting	Gymnastics	Weightlifting	Volleyball		
Handball	Wrestling	Handball	Wrestling	Water Polo		
Hiking	X-C Running	Hiking	X-C Running	Wrestling		
Hockey	X-C Skiing	Hockey	X-C Skiing	X-C Running		
Horseback Riding		Horseback Riding				
Jazz		Jazz				
Jazz Ballet		Jazz Ballet				
Jogging		Jogging				
Judo		Judo				
Karate		Karate				
Lacrosse		Lacrosse				
Life Saving		Life Saving				
Modern Dance		Modern Dance				

APPENDIX C

TEST PROCEDURES

TEST PROCEDURES

Students reported to the gymnasium, dressed appropriately for exercise. All subjects received identical instructions. Each subject completed a data sheet under the supervision of a classroom teacher or a research team member. Kindergarten and Grade One students were paired off with Grade Five or Grade Six students during Phase One, for more effective operation and recording.

Tests were performed in the following order:

Phase One

1. Complete data sheet.
2. One minute speed sit-ups, partner assistance
3. Agility run - five or six students performing at once
4. Students were divided into small groups and were required to circulate from station to station to complete the following tests:
    a) height, weight and posture
    b) skinfold measures (% body fat)
    c) flexed arm hang test
    d) basic motor skills
5. Classroom teacher received data sheets and was asked to rank each student academically.

Phase Two

1. Students checked data sheets for errors or omissions and filled out participation portion. Age changes were noted and recorded.

2. Students received instructions and performed the run portion of the test (cardiovascular)

5 - 9 years of age - 800 meters

10 - 12 years of age - 1600 meters

13 - up years of age - 2400 meters

APPARATUS

Timing:

Hanhart 1/10 second stop watches were used for the one minute speed sit-ups, agility run, flexed arm hang and the run tests. The watches were tested every day for calibration. Any watch that disagreed more than 1/10 of a second from the other watches was not used and was sent in for repairs. Two watches were used wherever possible. Standardized C.A.H.P.E.R. and C.T.F.A. cross-country run procedures were followed.

Body Weight:

Two Seca weigh scales were purchased for the study. Measurements were read to the nearest ½ of a kg. The scales were checked regularly for disagreement. Subjects were weighed without shoes.

Height:

A two meter fiberglass measuring tape was taped to the gymnasium wall for recording the height of each subject. A carpenter's level was placed on the top of each subject's head and the height was recorded when the level was exactly parallel to the floor (level). Each subject was measured without shoes, with heels touching the wall. Measures were recorded to the nearest 1/10.

Posture:

A series of vertical and horizontal lines (Visual 'T' Line) formed with masking tape on the gym wall was used to analyse posture. Each subject was instructed to stand "normal" in front ot the 'T' line, without shoes. Anterior and side views were checked for postural deviations against the lined background. A visual check was made for scoliosis, lordosis, foreward head and lowered shoulders. Only obvious deviations were recorded.

Mats:

Gymnastics tumbling mats were utilized for the one minute speed sit-ups and under the flexed arm hang bars.

Flexed Arm Hang Bars:

Wherever possible, chinning bars or gymnastic high bars were used. In schools where no bars were present, doorway expander bars were used. Several climbing frames and free suspended bars were used to expedite the flexed arm hang test. Bar diameters were kept between 1¼ and 1 3/4 inches. One to seven subjects were tested at any one time.

Flexometer:

Five modified Wells and Dillon sit and reach flexometers (C.A.H.P.E.R. Adult Test) were used for the flexibility test.

Agility Run:

Masking tape and existing gymnasium floor lines were used for the agility run. 2" x 4" wooden blocks and blackboard erasers were used for blocks. Subjects were instructed to run in gymnasium shoes or in bare feet, to ensure good traction.

Skinfold:

Harpenden skinfold calipers were used to measure standardized tricep, bicep, sub-scapular and suprailiac skinfolds (4 site procedure - left side). The Van Huss method was used to determine percent body fat. The skinfold total of 40 mm

was used as a lower limit for overweight.

Basic Motor Skill Screen Test:

Existing gymnasium floor lines and volleyballs were used to administer the test.

Cardiovascular Run:

Numbered manilla tag strips 1" x 8" were used at the finish line. Testing was done on oval outdoor playground tracks. Pilons or flags were used as markers. Official cross country timing sheets (Appendix D) were used. Students who were not performing the run and survey team members attempted to verbally motivate the runners.

APPENDIX D

CROSS COUNTRY TIME SHEET

CROSS COUNTRY TIME SHEET

Times at Mile – Check One – 1( ) 2( ) 3( ) 4( ) 5( ) 6( ) Final( )

Clerk _____

Number	Number	Number	Number	Number	Number
:01	:01	:01	:01	:01	:01
:02	:02	:02	:02	:02	:02
:03	:03	:03	:03	:03	:03
:04	:04	:04	:04	:04	:04
:05	:05	:05	:05	:05	:05
:06	:06	:06	:06	:06	:06
:07	:07	:07	:07	:07	:07
:08	:08	:08	:08	:08	:08
:09	:09	:09	:09	:09	:09
:10	:10	:10	:10	:10	:10
:11	:11	:11	:11	:11	:11
:12	:12	:12	:12	:12	:12
:13	:13	:13	:13	:13	:13
:14	:14	:14	:14	:14	:14
:15	:15	:15	:15	:15	:15
:16	:16	:16	:16	:16	:16
:17	:17	:17	:17	:17	:17
:18	:18	:18	:18	:18	:18
:19	:19	:19	:19	:19	:19
:20	:20	:20	:20	:20	:20
:21	:21	:21	:21	:21	:21
:22	:22	:22	:22	:22	:22
:23	:23	:23	:23	:23	:23
:24	:24	:24	:24	:24	:24
:25	:25	:25	:25	:25	:25
:26	:26	:26	:26	:26	:26
:27	:27	:27	:27	:27	:27
:28	:28	:28	:28	:28	:28
:29	:29	:29	:29	:29	:29
:30	:30	:30	:30	:30	:30
:31	:31	:31	:31	:31	:31
:32	:32	:32	:32	:32	:32
:33	:33	:33	:33	:33	:33
:34	:34	:34	:34	:34	:34
:35	:35	:35	:35	:35	:35
:36	:36	:36	:36	:36	:36
:37	:37	:37	:37	:37	:37
:38	:38	:38	:38	:38	:38
:39	:39	:39	:39	:39	:39
:40	:40	:40	:40	:40	:40
	:41	:41	:41	:41	:41
	:42	:42	:42	:42	:42
	:43	:43	:43	:43	:43
	:44	:44	:44	:44	:44
	:45	:45	:45	:45	:45
	:46	:46	:46	:46	:46
	:47	:47	:47	:47	:47
	:48	:48	:48	:48	:48
	:49	:49	:49	:49	:49
	:50	:50	:50	:50	:50
	:51	:51	:51	:51	:51
	:52	:52	:52	:52	:52
	:53	:53	:53	:53	:53
	:54	:54	:54	:54	:54
	:55	:55	:55	:55	:55
	:56	:56	:56	:56	:56
	:57	:57	:57	:57	:57
	:58	:58	:58	:58	:58
	:59	:59	:59	:59	:59
	:60	:60	:60	:60	:60

APPENDIX E

NORMS

5 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	134	35.2	12.4	45.0	43	61.2	4:06
95	120	25.5	14.2	40.0	30	31.0	4:40
90	118	24.0	14.5	39.0	26	25.0	4:51
85	118	23.0	14.9	38.0	23	22.7	4:58
80	116	22.0	15.3	37.6	21	18.0	5:07
75	116	21.5	15.4	37.0	20	16.6	5:15
70	115	21.0	15.7	36.7	19	14.1	5:20
65	114	20.5	16.0	36.0	18	13.0	5:26
60	114	20.0	16.0	35.0	16	11.5	5:31
55	113	19.8	16.3	34.0	15	10.5	5:36
50	112	19.5	16.5	33.5	13	9.5	5:39
45	111	19.0	16.8	33.0	11	8.4	5:43
40	111	18.9	17.0	32.0	10	7.1	5:46
35	110	18.5	17.1	31.0	8	6.0	5:52
30	109	18.4	17.4	30.0	6	5.0	5:59
25	108	18.0	17.8	29.5	4	4.0	6:05
20	108	17.5	18.5	29.0	2	3.4	6:15
15	107	17.0	19.0	27.0	1	2.0	6:30
10	106	16.4	19.6	26.0	0	0.0	6:45
5	104	15.9	20.4	24.0	0	0.0	7:15
0	97	14.1	27.7	3.3	0	0.0	8:20
Mean	112.3	20.0	16.9	32.9	13.3	11.6	5:44
Std. Dev.	5.2	3.2	2.2	5.6	9.8	9.9	0:47
Sample	276	276	268	278	281	270	211

5 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	127	35.0	13.3	43.0	72	94.0	4:05
95	120	24.8	14.0	40.0	27	40.1	4:39
90	118	23.5	14.4	38.0	23	27.5	4:53
85	118	23.0	14.7	36.0	22	22.0	4:59
80	117	22.4	14.9	35.5	20	19.8	5:07
75	116	22.0	15.1	34.8	18	17.0	5:11
70	115	21.7	15.3	34.0	16	14.9	5:15
65	115	21.4	15.5	33.1	15	13.1	5:21
60	114	20.5	15.8	32.6	14	11.0	5:26
55	113	20.1	15.9	32.0	13	10.0	5:30
50	113	20.0	16.1	31.4	12	9.6	5:34
45	112	19.8	16.4	30.5	11	8.9	5:38
40	112	19.5	16.6	29.8	9	7.9	5:44
35	111	19.1	16.8	29.0	8	6.9	5:53
30	110	18.9	17.1	28.0	6	5.6	6:00
25	110	18.5	17.4	27.0	5	4.0	6:08
20	109	18.2	17.9	26.0	3	3.5	6:16
15	108	17.9	18.2	25.0	1	2.8	6:21
10	107	17.4	18.9	23.5	0	0.8	6:36
5	105	16.8	19.4	21.0	0	0.0	6:57
0	100	15.0	28.8	2.7	0	0.0	8:04
Mean	112.8	20.4	16.5	30.78	12.4	12.9	5:41
Std. Dev.	4.6	2.9	1.9	6.3	9.6	12.9	0:44
Sample	264	265	247	263	259	260	204

6 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	145	42.5	12.2	50.5	50	75.0	4:04
95	126	27.4	13.2	40.0	35	35.0	4:22
90	124	25.9	13.6	39.0	31	27.5	4:36
85	122	24.9	13.9	38.0	30	24.0	4:42
80	122	24.0	14.1	37.0	28	21.3	4:49
75	121	23.5	14.2	36.0	27	18.5	4:53
70	120	23.0	14.5	35.0	25	16.0	4:58
65	119	22.5	14.6	34.0	23	15.0	5:04
60	118	22.2	14.7	34.0	21	14.0	5:11
55	118	21.8	14.9	33.0	20	12.8	5:20
50	117	21.5	15.0	32.8	19	11.5	5:24
45	116	21.1	15.2	32.0	18	10.5	5:30
40	116	20.8	15.4	31.0	16	9.8	5:37
35	115	20.5	15.5	30.5	14	8.5	5:44
30	115	20.3	15.8	30.0	13	7.5	5:50
25	114	19.7	16.0	29.0	11	7.0	5:57
20	113	19.3	16.4	28.0	9	6.0	6:07
15	112	18.7	16.6	26.5	7	5.0	6:16
10	112	18.1	17.1	24.5	3	3.7	6:30
5	109	17.2	17.6	22.5	0	2.0	6:51
0	104	14.0	19.8	13.7	0	0.0	8:19
Mean	117.7	21.8	15.2	32.2	18.7	14.5	5:29
Std. Dev.	5.8	3.5	1.4	5.6	10.4	11.5	0:48
Sample	332	333	301	329	332	317	316

6 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	140	37.5	12.1	51.2	60	61.0	3:18
95	128	29.2	13.0	38.5	34	39.0	4:14
90	126	26.3	13.2	37.5	30	32.1	4:22
85	124	25.3	13.4	36.0	27	26.0	4:34
80	123	24.5	13.7	34.9	26	24.0	4:40
75	122	24.0	13.9	34.5	25	21.0	4:48
70	121	23.7	14.1	33.6	23	18.9	4:53
65	120	23.2	14.3	33.0	22	16.6	5:00
60	120	22.5	14.4	32.0	21	14.6	5:04
55	119	22.4	14.5	31.0	20	13.4	5:09
50	118	22.0	14.6	30.8	19	12.0	5:15
45	117	21.5	14.9	29.9	17	10.9	5:19
40	116	21.1	15.0	28.9	16	9.8	5:23
35	116	20.7	15.2	27.9	15	8.9	5:29
30	115	20.4	15.6	26.9	14	8.0	5:35
25	114	20.0	15.9	26.3	12	6.8	5:49
20	113	19.5	16.2	25.9	10	6.0	5:58
15	112	19.3	16.7	24.0	7	4.9	6:11
10	111	18.5	17.0	22.0	4	3.0	6:26
5	108	17.5	18.0	19.4	1	1.0	6:44
0	100	14.0	25.4	9.0	0	0.0	7:35
Mean	118.4	23.3	15.1	30.1	18.4	15.1	5:20
Std. Dev.	6.9	3.7	1.7	5.9	9.9	11.6	0:46
Sample	329	328	314	328	331	325	318

7 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	142	43.0	11.5	45.0	61	73.0	3:01
95	132	32.0	12.6	41.0	45	43.1	4:12
90	130	30.0	12.9	39.4	42	34.4	4:23
85	129	28.5	13.1	38.0	40	28.0	4:28
80	128	27.2	13.4	37.0	36	24.0	4:34
75	126	26.5	13.6	36.0	34	20.6	4:40
70	126	25.8	13.7	35.0	32	18.7	4:46
65	125	25.5	14.0	35.0	31	17.0	4:50
60	124	25.0	14.1	34.0	29	15.8	4:55
55	124	24.5	14.2	33.3	28	14.0	5:03
50	123	24.0	14.4	32.7	26	12.5	5:11
45	122	23.5	14.6	32.0	25	11.5	5:17
40	121	23.2	14.8	31.0	24	10.9	5:22
35	121	22.8	14.9	30.0	23	9.5	5:29
30	120	22.3	15.0	29.5	22	8.4	5:38
25	119	21.9	15.3	28.5	20	7.0	5:44
20	118	21.5	15.5	27.8	18	6.0	5:55
15	117	21.0	15.7	27.0	16	5.0	6:04
10	116	20.1	16.0	25.0	12	3.2	6:20
5	114	19.3	16.6	22.0	5	1.1	6:32
0	108	16.0	20.1	13.6	0	0.0	7:18
Mean	123.2	24.7	14.5	32.3	26.9	16.4	5:15
Std. Dev.	6.5	4.1	1.3	5.6	11.7	13.3	0:44
Sample	367	365	365	362	373	370	320

7 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	140	41.3	11.6	45.0	60	199.0	3:32
95	133	33.0	12.4	37.7	44	45.9	3:54
90	131	29.9	12.6	36.0	41	36.0	4:04
85	129	28.0	12.8	35.0	38	30.0	4:13
80	128	27.5	13.0	34.0	36	26.9	4:19
75	127	26.9	13.1	33.0	34	23.4	4:23
70	126	26.2	13.3	32.1	33	21.0	4:28
65	125	26.0	13.5	31.4	32	19.9	4:34
60	12[illegible]	25.7	13.6	30.7	30	18.0	4:41
55	124	25.0	13.7	30.0	29	16.4	4:46
50	124	24.6	13.9	29.0	27	15.2	4:52
45	123	24.1	14.1	28.3	26	13.7	4:58
40	123	23.9	14.2	28.0	25	12.6	5:04
35	122	23.5	14.4	27.0	23	15.5	5:12
30	121	23.1	14.5	26.0	22	10.0	5:20
25	121	22.7	14.6	25.8	21	9.0	5:25
20	120	22.3	14.8	25.0	20	7.5	5:34
15	118	21.5	15.1	23.7	17	6.5	5:44
10	117	21.0	15.4	21.5	12	5.2	5:57
5	116	20.0	16.0	19.0	8	3.0	6:07
0	113	18.0	26.0	13.0	0	0.0	6:16
Mean	124	25.2	14.0	29.1	27.4	18.7	4:57
Std. Dev.	5.1	3.8	1.4	5.5	10.8	16.4	0:43
Sample	360	359	354	355	365	366	344

8 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	146	70.0	10.2	44.2	55	87.0	3:28
95	138	37.5	12.1	40.0	46	43.6	4:00
90	136	35.0	12.5	38.4	43	34.0	4:10
85	135	32.6	12.7	37.5	41	28.8	4:17
80	134	31.5	12.9	36.7	39	23.7	4:25
75	133	30.5	13.0	35.5	38	21.0	4:31
70	132	29.0	13.2	35.0	36	19.0	4:36
65	131	28.5	13.4	34.0	34	17.2	4:40
60	130	27.5	13.5	33.0	33	16.0	4:45
55	129	27.0	13.7	32.0	32	14.5	4:48
50	128	26.5	13.8	31.0	30	13.5	4:55
45	128	25.9	13.9	30.3	29	12.5	5:00
40	127	25.1	14.2	30.0	27	11.0	5:05
35	126	25.0	14.3	29.0	26	9.6	5:12
30	125	24.5	14.5	28.0	24	8.5	5:19
25	124	24.0	14.7	27.0	23	7.2	5:27
20	124	23.5	14.9	26.0	21	6.4	5:36
15	122	22.8	15.2	24.0	19	5.0	5:49
10	121	22.0	15.5	22.6	16	3.5	6:17
5	118	21.0	16.1	19.2	12	2.0	6:37
0	100	17.4	17.9	9.0	0	0.0	8:17
Mean	128.5	27.9	13.9	31.0	30.1	16.7	5:04
Std. Dev.	6.2	6.3	1.2	6.3	10.6	13.3	0:49
Sample	378	379	364	374	382	373	378

8 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	151	53.9	10.0	44.0	64	94.0	3:14
95	138	36.6	11.7	37.2	51	52.8	3:36
90	136	33.6	12.0	36.0	45	43.4	3:48
85	135	32.0	12.3	35.0	42	38.2	3:56
80	134	31.2	12.5	33.8	40	34.2	4:03
75	133	30.3	12.6	33.0	39	30.0	4:08
70	132	29.8	12.7	32.0	38	26.5	4:13
65	131	29.3	12.9	31.8	37	24.0	4:19
60	131	28.5	13.0	30.9	35	21.3	4:25
55	130	27.8	13.2	30.0	34	19.1	4:29
50	129	27.3	13.3	29.0	33	18.0	4:35
45	128	26.8	13.5	28.5	31	16.8	4:42
40	128	26.5	13.6	28.0	30	15.7	4:46
35	127	26.0	13.8	26.9	29	14.0	4:54
30	126	25.5	14.0	25.7	27	13.0	5:04
25	126	25.0	14.2	25.0	26	11.0	5:13
20	124	24.5	14.4	23.9	23	9.5	5:21
15	124	24.0	14.7	22.1	21	7.8	5:31
10	122	23.5	15.1	20.9	19	6.1	5:50
5	121	22.6	15.7	18.0	15	3.6	6:08
0	116	19.7	24.1	0.0	0	0.0	8:11
Mean	129.4	28.2	13.5	28.7	32.6	22.2	4:43
Std. Dev.	5.5	4.6	1.4	6.1	10.7	15.9	0:47
Sample	426	428	409	426	430	424	384

9 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	183	57.0	11.0	47.0	70	89.8	3:27
95	144	43.0	11.6	40.0	47	51.3	3:43
90	142	39.6	12.0	38.0	44	38.0	3:53
85	141	37.0	12.2	36.5	42	30.5	4:05
80	140	35.5	12.4	36.0	40	27.8	4:11
75	138	34.1	12.5	35.0	38	25.2	4:18
70	137	33.0	12.7	34.0	37	23.2	4:22
65	136	31.8	12.8	33.2	36	21.0	4:27
60	135	31.0	13.0	33.0	34	18.6	4:30
55	134	30.6	13.0	32.0	33	16.9	4:38
50	134	30.0	13.2	31.3	31	15.3	4:43
45	133	29.2	13.4	31.0	30	14.0	4:47
40	132	28.5	13.6	30.0	28	13.0	4:55
35	132	28.0	13.8	29.0	26	11.3	5:02
30	131	27.0	14.0	28.0	25	9.5	5:09
25	130	26.5	14.1	27.0	24	7.9	5:17
20	130	26.0	14.4	26.0	22	7.0	5:28
15	128	25.2	14.7	24.5	19	5.0	5:35
10	127	24.5	15.1	23.0	16	3.7	5:45
5	124	23.1	15.8	19.5	10	2.0	6:15
0	116	19.3	18.6	8.0	0	0.0	7:45
Mean	134.7	31.1	13.5	30.9	30.8	19.0	4:49
Std. Dev.	8.0	6.4	1.3	6.2	11.4	14.8	0:46
Sample	386	388	370	382	382	381	342

9 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (800 M.)
100	159	60.0	10.5	45.0	64	120.0	3:07
95	146	42.1	11.4	36.0	51	65.0	3:28
90	143	37.7	11.7	35.0	48	56.5	3:35
85	141	36.4	11.8	33.5	45	46.4	3:39
80	140	35.4	12.0	32.0	43	41.7	3:45
75	139	33.9	12.2	31.7	41	35.7	3:49
70	138	33.0	12.4	30.6	40	33.0	3:55
65	136	32.0	12.5	30.0	39	30.0	4:02
60	136	31.4	12.6	29.0	38	27.2	4:06
55	135	30.9	12.8	28.5	37	24.7	4:10
50	134	30.1	12.9	28.0	36	22.0	4:18
45	134	29.5	13.0	27.0	34	19.5	4:23
40	133	29.0	13.0	26.0	33	18.0	4:27
35	132	28.5	13.2	25.0	32	17.0	4:35
30	132	28.0	13.4	25.0	30	15.0	4:41
25	130	27.4	13.7	23.0	29	13.2	4:48
20	130	26.5	13.9	22.0	27	11.5	4:59
15	129	25.8	14.1	21.0	25	10.0	5:16
10	127	25.1	14.5	20.0	22	7.9	5:30
5	125	24.0	14.9	16.0	16	4.2	5:50
0	114	19.0	16.8	0.9	0	0.0	8:16
Mean	135.2	31.0	12.9	27.4	35.2	27.7	4:26
Std. Dev.	7.8	5.8	1.4	6.1	10.2	19.6	0:48
Sample	402	403	388	400	399	401	348

10 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (1600 M.)
100	161	65.0	10.4	51.8	76	95.0	6:14
95	153	47.4	11.4	38.2	51	57.6	7:51
90	149	44.0	11.7	37.0	47	44.0	8:11
85	148	41.4	12.0	36.0	43	38.0	8:29
80	146	39.9	12.1	34.5	41	33.2	8:39
75	144	38.0	12.3	33.2	40	28.6	8:49
70	143	36.9	12.5	32.2	39	25.5	9:00
65	142	36.0	12.6	31.5	37	23.0	9:11
60	142	35.0	12.7	30.9	35	20.5	9:20
55	141	34.0	12.9	30.0	34	18.0	9:32
50	140	33.2	13.0	29.0	33	16.0	9:45
45	139	32.5	13.1	28.2	32	14.3	9:58
40	138	32.0	13.2	28.0	30	13.0	10:06
35	138	31.2	13.4	27.0	29	11.4	10:20
30	136	30.5	13.5	26.0	27	10.3	10:34
25	135	29.6	13.7	25.0	26	8.9	10:49
20	134	28.5	14.0	24.0	24	7.0	11:11
15	133	27.9	14.4	23.0	23	5.6	11:27
10	131	26.5	14.7	21.2	20	3.2	12:06
5	130	24.6	15.1	19.0	16	1.6	12:27
0	122	20.5	17.8	11.0	0	0.0	13:13
Mean	140.6	34.5	13.1	29.3	33.3	21.5	8:54
Std. Dev.	8.1	7.2	1.1	6.1	10.9	18.1	1:24
Sample	447	447	409	445	447	441	380

10 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (1600 M.)
100	160	68.0	10.2	53.0	65	120.0	6:19
95	151	46.0	10.9	37.0	53	69.0	7:05
90	148	43.2	11.3	35.0	50	59.6	7:28
85	146	40.9	11.5	34.0	47	52.0	7:41
80	145	39.5	11.7	32.5	46	46.0	7:50
75	144	38.5	11.8	31.9	44	42.2	7:59
70	144	37.0	12.0	31.0	42	38.8	8:09
65	143	36.0	12.1	30.0	41	35.7	8:16
60	142	35.0	12.2	29.5	40	32.8	8:23
55	141	34.0	12.4	28.0	38	30.0	8:32
50	140	33.5	12.5	27.5	37	27.0	8:44
45	139	33.0	12.6	27.0	35	23.5	8:52
40	138	32.3	12.8	26.0	34	21.0	9:03
35	138	31.6	12.9	25.0	33	19.0	9:14
30	137	31.0	13.0	24.2	31	17.0	9:26
25	136	30.5	13.3	23.2	30	15.2	9:49
20	134	29.6	13.4	22.0	28	13.7	10:05
15	134	29.0	13.6	21.0	26	10.6	10:30
10	132	28.0	14.0	19.0	22	8.0	10:55
5	130	26.3	14.7	16.0	17	4.0	11:59
0	126	22.0	18.9	3.5	0	0.0	13:10
Mean	140.4	34.9	12.6	27.4	36.6	31.0	9:00
Std. Dev.	6.5	6.8	1.5	6.4	10.9	20.8	1:25
Sample	450	457	431	455	455	453	422

11 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (1600 M.)
100	169	74.6	10.2	47.2	70	103.0	6:21
95	159	57.4	11.1	39.5	53	61.4	7:25
90	156	51.8	11.5	38.0	49	52.0	7:45
85	155	50.0	11.7	37.0	46	42.0	8:27
80	153	46.3	12.0	35.9	45	35.6	8:37
75	152	44.8	12.0	35.0	43	31.3	8:45
70	151	43.0	12.2	33.6	41	27.4	8:53
65	149	41.7	12.3	32.7	40	25.0	9:02
60	149	40.5	12.5	32.0	39	23.0	9:14
55	148	39.5	12.6	31.2	37	20.4	9:24
50	146	38.5	12.8	30.0	37	18.6	9:35
45	145	37.4	13.0	29.5	35	16.1	9:44
40	144	36.3	13.1	28.5	33	15.0	9:55
35	143	35.0	13.2	27.2	32	13.3	10:10
30	142	34.0	13.3	26.0	30	11.7	11:22
25	141	33.2	13.5	25.0	29	10.0	10:38
20	140	32.4	13.7	24.0	26	7.2	10:52
15	138	31.4	14.0	23.0	24	5.1	11:19
10	137	30.0	14.4	20.0	20	4.0	11:52
5	134	28.5	15.3	16.0	14	1.4	12:15
0	128	24.0	18.5	10.0	0	0.0	13:05
Mean	146.6	40.1	12.9	29.8	35.4	23.8	9:45
Std. Dev.	7.8	9.0	1.2	6.8	11.7	21.2	1:21
Sample	404	403	364	398	398	391	376

11 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (1600 M.)
100	165	71.5	10.0	45.0	74	101.2	6:29
95	156	51.4	10.8	37.0	53	69.4	7:00
90	154	48.0	11.1	35.0	48	61.0	7:15
85	152	45.5	11.3	34.0	46	54.0	7:24
80	150	43.0	11.5	33.0	44	47.9	7:34
75	149	41.1	11.6	32.0	42	42.3	7:46
70	148	40.0	11.9	31.0	41	39.0	7:56
65	147	39.0	11.9	30.0	40	36.0	8:03
60	146	38.2	12.0	29.3	39	33.1	8:11
55	145	37.3	12.1	28.0	37	30.5	8:22
50	144	36.5	12.2	27.0	36	28.5	8:33
45	144	36.0	12.4	26.5	35	25.8	8:45
40	143	35.0	12.5	25.2	33	23.0	8:52
35	142	34.4	12.7	24.5	32	21.0	9:04
30	141	33.9	12.8	23.0	30	19.0	9:14
25	140	33.1	13.0	22.0	30	17.0	9:31
20	138	32.0	13.2	20.6	27	13.1	9:57
15	137	31.2	13.4	19.5	25	10.0	10:31
10	135	30.0	13.8	17.0	23	7.0	11:02
5	133	28.3	14.4	13.0	17	4.0	11:45
0	125	24.8	21.1	5.0	0	0.0	12:10
Mean	144.6	38.2	12.4	26.7	36.0	31.6	8:49
Std. Dev.	7.3	7.7	1.2	7.2	10.4	20.3	1:25
Sample	403	402	380	403	402	400	385

12 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (1600 M.)
100	171	82.5	10.1	55.0	65	160.0	7:06
95	164	62.0	10.9	41.0	53	58.0	7:44
90	161	57.0	11.1	39.0	49	44.4	7:57
85	159	54.7	11.2	37.0	47	38.0	8:18
80	157	52.5	11.4	36.0	45	34.0	8:33
75	157	50.4	11.6	35.0	44	30.4	8:42
70	156	48.5	11.7	34.0	42	26.5	8:53
65	155	47.1	11.9	33.0	40	22.9	9:01
60	154	45.5	12.0	32.0	39	19.7	9:19
55	154	44.4	12.2	31.0	38	18.4	9:33
50	152	43.5	12.3	30.0	37	16.0	9:45
45	152	42.6	12.4	29.0	35	14.0	9:50
40	151	41.5	12.5	28.2	33	12.0	10:09
35	150	40.5	12.7	27.5	31	10.5	10:36
30	148	39.4	12.8	26.0	30	9.4	10:53
25	147	37.5	13.0	25.5	29	8.0	11:16
20	146	36.6	13.2	24.0	25	6.4	11:38
15	145	35.0	13.6	23.0	23	4.4	11:54
10	143	33.6	14.0	21.0	20	2.9	12:26
5	140	31.0	14.5	18.0	16	1.0	12:48
0	133	25.5	17.0	7.0	0	0.0	13:18
Mean	152.4	45.0	12.4	30.3	35.8	21.2	10:00
Std. Dev.	7.3	9.9	1.2	7.2	11.4	18.7	1:37
Sample	422	422	389	415	420	411	262

12 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	METER RUN (1600 M.)
100	175	82.9	9.7	51.0	67	180.0	6:13
95	163	62.3	10.5	36.0	57	70.4	6:50
90	160	54.2	10.8	34.0	53	66.0	7:07
85	158	51.5	11.0	33.0	50	60.7	7:14
80	157	49.0	11.1	32.0	49	53.8	7:25
75	155	47.5	11.2	31.0	46	48.3	7:33
70	154	46.2	11.4	30.0	45	45.3	7:40
65	152	44.5	11.5	29.9	44	41.8	7:46
60	151	43.5	11.6	29.0	42	38.6	7:56
55	151	42.0	11.7	28.0	40	34.8	8:06
50	150	40.5	11.9	27.0	40	31.5	8:16
45	149	39.4	12.0	27.0	38	29.1	8:32
40	148	39.0	12.1	25.9	37	25.5	8:48
35	146	37.9	12.3	25.0	35	22.9	9:03
30	145	36.6	12.5	24.0	34	19.9	9:23
25	145	35.8	12.6	23.0	32	17.0	9:51
20	143	35.0	12.8	22.0	30	14.6	10:14
15	142	34.0	13.0	20.0	28	12.0	10:53
10	141	33.0	13.4	17.0	25	8.0	11:28
5	138	31.3	14.4	13.5	21	4.0	12:06
0	109	16.1	18.8	4.5	0	0.0	13:15
Mean	150	43.0	12.0	26.9	39.4	34.9	8:47
Std. Dev.	8.4	10.02	1.2	6.8	10.9	22.2	1:39
Sample	371	373	362	371	371	367	310

13 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	175	99.9	10.0	49.0	63	153.9	17.2	9:25
95	168	67.2	10.6	43.0	53	60.0	23.9	11:29
90	165	60.1	10.9	41.0	50	47.0	25.7	12:04
85	164	57.6	11.0	39.2	48	42.3	27.8	12:18
80	162	56.0	11.2	37.5	46	37.2	29.5	12:37
75	161	54.4	11.3	36.5	45	33.6	30.9	13:00
70	160	53.0	11.4	35.8	43	31.4	32.0	13:14
65	159	51.7	11.5	35.0	42	28.0	34.2	13:29
60	158	50.1	11.6	34.0	41	25.3	35.7	13:40
55	157	49.0	11.8	33.0	40	23.1	37.5	14:05
50	157	48.0	11.9	32.0	39	21.0	40.2	14:29
45	156	47.1	12.0	31.0	38	19.0	42.4	14:51
40	155	46.0	12.1	30.0	36	16.4	45.1	15:21
35	154	45.0	12.3	29.0	35	13.1	47.5	15:34
30	153	44.0	12.5	28.0	33	11.4	50.2	15:54
25	152	42.9	12.7	27.0	31	9.4	55.4	16:04
20	151	41.4	12.9	26.0	30	8.0	59.5	16:29
15	150	40.0	13.2	24.0	29	6.0	66.3	16:51
10	148	37.7	13.5	23.0	25	3.9	77.0	17:34
5	146	35.7	14.0	19.0	21	1.6	96.6	18:22
0	137	30.5	21.2	7.0	0	0.0	148.0	19:44
Mean	156.8	49.3	12.2	31.7	38.1	24.7	48.1	14:35
Std. Dev.	6.6	9.6	1.2	7.4	10.1	20.1	35.7	2:07
Sample	525	526	503	518	524	513	474	397

13 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	184	85.0	9.2	54.0	76	102.0	16.5	8:26
95	171	67.0	10.2	37.3	59	75.6	19.3	9:40
90	168	62.0	10.4	35.0	55	67.5	21.0	10:15
85	166	59.3	10.6	33.8	52	62.9	22.0	10:42
80	165	57.0	10.8	33.0	50	60.0	23.5	10:55
75	163	54.3	11.0	32.0	49	53.9	24.6	11:09
70	162	52.1	11.0	31.0	47	50.0	25.4	11:23
65	160	51.0	11.1	30.0	46	46.6	26.4	11:38
60	159	49.9	11.2	29.0	45	43.0	27.1	11:50
55	158	48.0	11.4	28.0	44	41.0	28.1	12:01
50	157	47.0	11.5	27.0	42	38.4	29.6	12:12
45	156	46.2	11.6	26.0	42	35.0	31.2	12:25
40	155	45.4	11.8	25.1	40	31.9	33.0	12:42
35	154	44.1	11.9	25.0	39	29.2	35.5	13:05
30	152	43.2	12.0	23.5	38	25.0	38.3	13:27
25	150	41.7	12.1	22.0	36	21.8	45.0	13:52
20	150	30.0	12.4	21.0	34	18.7	49.2	14:20
15	148	48.5	12.6	18.5	31	16.0	56.0	14:58
10	145	37.0	13.4	16.0	28	11.6	69.0	15:24
5	142	34.0	13.8	13.0	25	5.4	86.7	17:13
0	132	28.8	18.1	4.0	2	0.0	148.6	19:51
Mean	157	48.9	11.8	26.9	42	39.9	41.9	11:39
Std. Dev.	9.0	10.2	2.1	8.3	10.5	25.7	41.8	2:09
Sample	432	433	423	431	431	421	366	413

14 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	179	95.6	9.0	55.0	70	99.9	13.2	9:26
95	170	70.2	10.5	43.4	52	52.8	27.0	11:40
90	167	64.0	10.7	41.0	49	43.7	29.3	12:03
85	166	61.1	10.9	39.8	47	37.5	31.5	12:36
80	165	59.4	11.1	38.0	45	33.5	33.5	13:10
75	164	57.0	11.2	37.0	44	30.0	35.3	13:27
70	163	56.1	11.4	36.0	43	26.6	36.9	13:42
65	162	55.0	11.5	35.0	42	24.2	39.1	14:03
60	161	54.0	11.6	34.0	41	23.0	41.6	14:21
55	160	53.0	11.8	33.0	40	20.9	43.5	14:39
50	160	52.0	11.9	32.0	39	19.0	45.5	14:57
45	159	51.3	12.0	31.2	37	16.5	47.1	15:15
40	158	50.2	12.2	30.5	36	14.2	49.8	15:27
35	158	49.0	12.4	29.9	35	12.8	51.9	15:46
30	157	48.0	12.5	28.0	33	11.2	54.4	15:59
25	156	47.0	12.8	27.0	31	9.4	57.8	16:24
20	155	45.5	13.0	26.0	30	7.2	61.5	16:42
15	154	44.4	13.3	24.0	28	5.0	65.9	17:16
10	152	42.6	13.7	22.0	25	2.6	75.8	17:39
5	149	40.0	14.2	18.0	19	0.4	94.0	18:35
0	130	30.7	16.9	10.8	0	0.0	137.8	19:48
Mean	159.8	53.0	12.1	31.9	37.7	22.2	49.5	14:55
Std. Dev.	6.7	9.4	1.2	7.6	10.1	19.7	20.3	2:05
Sample	515	521	501	516	516	493	472	384

14 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	191	99.9	9.0	52.0	73	150.0	15.0	8:04
95	178	75.0	9.8	40.1	59	79.3	19.2	9:46
90	175	69.0	10.0	38.0	55	71.9	20.6	10:10
85	173	66.4	10.2	36.0	53	65.0	21.7	10:29
80	171	64.0	10.3	34.0	51	62.4	22.5	10:43
75	170	61.5	10.5	33.0	50	59.8	23.3	10:54
70	169	59.2	10.6	32.0	49	57.0	24.2	11:05
65	168	57.5	10.7	31.0	47	54.8	25.3	11:18
60	166	55.9	10.8	30.0	46	52.0	26.0	11:32
55	165	55.0	10.9	29.0	45	48.5	26.9	11:43
50	164	53.5	11.0	28.0	44	45.6	27.9	11:52
45	162	52.0	11.2	27.0	42	41.8	29.0	12:06
40	162	51.0	11.4	26.0	41	38.2	30.5	12:24
35	160	49.3	11.5	25.0	40	35.0	32.6	12:36
30	159	47.5	11.6	24.0	39	33.8	34.7	12:57
25	157	46.6	11.9	23.0	37	29.8	37.3	13:28
20	156	45.0	12.1	21.7	35	25.9	42.8	14:08
15	154	43.2	12.4	20.0	34	21.0	50.4	14:48
10	151	40.5	12.8	16.2	31	15.5	61.4	15:48
5	148	38.0	13.4	14.0	29	8.3	76.0	16:57
0	141	28.0	21.0	4.0	8	0.0	151.4	19:49
Mean	163.8	54.7	11.3	28.0	43.7	46.2	34.7	12:27
Std. Dev.	9.4	11.4	1.2	7.9	9.7	30.4	19.2	2:13
Sample	524	526	516	519	520	515	498	438

15 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	187	90.0	9.8	54.3	61	76.0	19.5	9:12
95	171	69.5	10.4	44.2	53	54.9	27.7	11:03
90	168	64.5	10.7	42.0	50	45.2	31.6	11:56
85	167	61.8	10.9	40.0	47	40.0	33.5	12:11
80	166	60.0	11.0	39.0	45	36.0	35.0	12:24
75	164	58.0	11.1	38.0	43	31.0	36.8	12:35
70	164	57.0	11.3	37.0	42	28.4	38.7	12:58
65	163	56.0	11.4	35.6	41	24.0	40.0	13:31
60	162	55.0	11.5	35.0	39	21.2	41.5	13:53
55	162	54.1	11.7	34.0	38	19.7	42.7	14:06
50	161	53.3	11.9	32.0	37	18.1	43.8	14:32
45	160	52.5	11.9	31.0	36	16.5	45.0	14:59
40	160	51.4	12.1	31.0	34	15.0	47.4	15:11
35	158	50.5	12.2	30.0	32	14.0	50.0	15:24
30	158	49.4	12.4	29.0	31	11.6	52.9	16:02
25	157	48.2	12.5	28.0	30	10.5	56.3	16:25
20	156	47.3	12.9	26.6	28	8.8	58.1	16:37
15	155	46.0	13.1	25.0	26	6.5	63.8	17:08
10	154	45.0	13.5	22.5	24	4.8	72.4	17:45
5	151	41.7	14.2	16.0	18	2.0	90.0	18:29
0	141	36.3	18.7	6.2	0	0.0	139.6	19:56
Mean	160.9	54.2	12.1	32.4	36.6	23.4	48.9	14:36
Std. Dev.	6.4	8.8	1.3	8.2	10.4	25.7	19.5	2:17
Sample	330	330	326	321	332	317	310	210

15 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	195	99.9	8.1	57.0	73	162.5	14.8	8:07
95	181	78.5	9.5	43.0	59	84.0	19.6	9:38
90	179	73.2	9.8	40.0	56	74.5	20.8	10:02
85	177	70.0	10.0	38.6	55	70.0	22.1	10:16
80	176	68.0	10.1	37.0	53	65.6	23.0	10:29
75	175	66.0	10.2	36.0	51	62.2	23.6	10:40
70	174	64.6	10.3	35.0	50	60.3	24.5	10:52
65	173	63.0	10.4	34.0	50	58.9	25.4	11:02
60	172	61.0	10.5	33.0	48	55.1	26.3	11:13
55	171	60.0	10.6	31.0	46	52.5	27.0	11:22
50	170	59.0	10.7	30.0	45	50.0	27.9	11:35
45	169	58.0	10.8	29.0	44	48.0	29.0	11:47
40	168	56.4	11.0	28.0	43	44.8	30.1	11:59
35	166	55.1	11.1	27.0	42	41.5	31.8	12:10
30	165	54.0	11.2	25.5	40	39.8	33.4	12:24
25	164	52.6	11.4	24.0	39	33.0	36.3	12:53
20	163	51.0	11.5	22.0	37	28.8	39.2	13:27
15	161	49.5	11.8	20.0	35	24.0	45.7	13:56
10	159	46.6	12.1	18.0	32	19.1	55.4	14:33
5	156	42.5	12.7	14.0	27	13.8	72.6	16:00
0	148	31.4	15.5	6.0	11	0.8	152.5	19:08
Mean	170	59.9	10.9	29.9	44.8	51.0	33.7	12:00
Std. Dev.	7.7	10.8	2.2	8.7	9.7	31.6	17.8	1:57
Sample	436	433	429	432	436	424	414	330

16 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	180	91.5	9.9	50.0	62	65.8	25.0	10:04
95	172	69.5	10.5	44.0	50	50.6	30.6	10:30
90	170	66.0	10.7	42.0	49	45.0	34.0	11:37
85	168	63.0	10.9	40.5	47	40.4	35.8	12:08
80	167	61.5	11.0	39.0	45	37.0	37.1	12:29
75	166	60.0	11.2	38.0	44	32.6	38.2	12:4;
70	164	59.0	11.4	37.0	42	30.0	40.7	12:57
65	164	57.0	11.5	36.0	41	28.0	42.2	13:18
60	163	56.3	11.7	35.0	40	24.5	44.8	13:55
55	162	55.0	11.8	34.0	38	21.1	46.7	14:15
50	162	54.5	11.9	33.0	37	19.5	48.5	14:43
45	161	53.4	12.1	33.0	35	17.8	49.9	14:58
40	160	52.5	12.2	31.0	35	15.5	51.8	15:08
35	159	51.5	12.3	30.0	33	14.4	53.6	15:33
30	158	50.5	12.6	29.0	32	12.1	56.0	15:55
25	158	49.5	12.8	28.0	30	10.0	57.8	16:09
20	157	48.6	13.1	27.0	30	8.4	60.8	16:28
15	156	47.9	13.4	24.5	27	6.1	66.4	16:49
10	154	46.1	13.7	22.0	28	3.0	72.0	17:50
5	151	44.0	14.2	18.3	20	1.2	86.9	18:31
0	146	37.5	16.5	3.1	5	0.0	117.6	19:21
Mean	161.8	55.5	12.1	32.7	36.9	23.1	51.9	14:32
Std. Dev.	6.6	8.8	1.4	7.7	9.5	17.7	23.2	2:16
Sample	272	269	265	264	277	250	270	152

16 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	196	99.9	8.3	52.0	75	148.6	14.4	8:14
95	184	80.5	9.5	42.0	60	84.0	20.0	9:32
90	182	77.8	9.6	40.8	57	75.0	21.2	9:49
85	181	74.0	9.8	39.4	54	69.9	22.1	9:59
80	180	71.4	9.9	38.0	52	66.0	23.0	10:12
75	178	69.5	10.1	37.0	50	63.5	23.3	10:24
70	178	67.5	10.2	36.0	50	61.0	24.2	10:37
65	176	65.6	10.2	35.0	48	59.5	25.1	10:49
60	175	65.0	10.4	34.0	47	58.0	26.0	11:00
55	174	64.3	10.5	33.0	46	55.0	26.8	11:14
50	174	63.0	10.5	32.0	45	53.9	27.6	11:22
45	172	62.1	10.6	30.9	44	50.5	28.5	11:33
40	172	61.0	10.7	29.0	43	47.8	29.5	11:48
35	171	60.0	10.8	28.0	41	45.2	31.1	12:03
30	170	59.0	11.0	27.0	40	43.0	32.9	12:15
25	168	58.0	11.1	26.0	39	40.2	34.1	12:29
20	167	56.2	11.3	24.7	37	36.5	36.1	13:02
15	165	54.5	11.6	23.0	35	31.1	39.0	13:24
10	163	52.0	11.8	21.0	32	26.5	42.3	14:20
5	160	47.4	12.4	15.0	29	16.7	59.2	16:05
0	143	40.5	19.2	4.0	19	0.0	165.8	18:19
Mean	173	63.9	10.7	31.2	44.7	52.3	31.7	11:46
Std. Dev.	8.5	10.2	1.1	7.9	9.7	20.4	15.9	1:55
Sample	299	298	292	302	300	293	289	198

17 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	183	95.5	9.9	50.0	64	73.3	21.2	8:28
95	172	66.3	10.4	43.0	50	46.6	31.3	10:29
90	170	63.2	10.8	41.3	48	41.8	34.7	11:26
85	168	62.0	10.9	39.0	45	36.5	36.1	12:05
80	166	61.5	11.1	38.0	44	32.1	37.7	12:32
75	165	60.5	11.3	37.0	42	29.6	39.4	13:00
70	164	59.8	11.4	36.0	41	28.0	41.8	13:39
65	164	58.7	11.5	34.5	40	25.1	42.8	13:58
60	163	57.5	11.7	34.0	39	23.4	44.2	14:24
55	163	56.8	11.8	32.5	37	20.1	46.2	14:47
50	162	55.5	11.9	32.0	36	19.0	47.4	15:14
45	162	54.6	12.0	32.0	35	16.5	49.6	15:25
40	161	54.0	12.2	30.5	33	15.0	50.9	15:37
35	160	53.5	12.3	29.0	32	13.0	52.8	15:43
30	160	52.3	12.4	28.0	30	11.0	55.0	16:01
25	159	50.5	12.7	27.0	28	10.0	57.0	16:17
20	157	49.4	12.9	25.0	25	8.5	61.8	16:37
15	156	48.1	13.1	23.5	24	6.5	67.4	17:00
10	154	46.5	13.5	22.0	20	4.0	74.7	17:12
5	152	43.8	14.3	18.5	18	1.4	84.0	18:28
0	137	32.0	16.4	3.0	0	0.0	113.6	19:22
Mean	161.9	55.7	12.1	31.6	35.3	21.1	51.2	14:43
Std. Dev.	6.2	8.2	1.1	8.1	10.6	14.3	16.7	2:21
Sample	208	205	206	208	207	201	205	121

17 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	193	99.9	8.9	51.0	69	107.3	16.6	7:57
95	186	83.4	9.5	45.0	58	81.5	21.0	9:27
90	183	78.6	9.8	43.0	55	72.0	22.2	9:50
85	180	76.5	9.9	41.0	53	66.5	23.3	10:07
80	180	74.2	10.0	40.0	51	63.8	24.7	10:22
75	179	73.5	10.0	38.0	50	62.0	25.7	10:40
70	178	71.6	10.1	36.7	49	60.0	26.2	10:54
65	177	70.0	10.2	35.0	48	58.0	27.4	11:06
60	176	68.8	10.4	34.0	47	55.4	28.3	11:30
55	175	67.9	10.5	33.0	45	53.0	28.9	11:42
50	175	66.9	10.5	32.0	44	50.8	29.9	11:51
45	174	66.0	10.6	31.0	43	48.9	31.2	12:06
40	172	65.0	10.8	30.0	42	46.9	32.2	12:20
35	171	62.8	11.0	29.0	41	44.0	34.2	12:49
30	170	61.6	11.0	28.0	40	41.0	36.6	13:12
25	169	61.0	11.1	26.0	39	38.2	39.2	13:48
20	168	59.5	11.3	25.0	38	35.5	41.6	14:02
15	166	56.5	11.5	23.0	35	32.8	44.5	14:28
10	162	53.0	11.9	21.5	33	25.5	52.8	15:25
5	156	48.0	12.6	17.0	30	18.0	72.3	16:32
0	146	35.6	19.0	2.9	0	1.1	177.8	19:17
Mean	173.2	66.7	11.0	32.0	44.2	51.7	35.6	12:19
Std. Dev.	9.9	11.3	3.4	8.7	9.2	24.7	18.8	2:12
Sample	228	226	227	224	232	221	221	142

18 YEAR OLD GIRLS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	176	83.6	10.5	48.0	57	78.0	26.1	12:32
95	174	70.1	11.1	44.0	50	45.8	30.7	12:39
90	173	66.5	11.2	43.0	43	42.5	31.8	12:48
85	171	64.2	11.2	41.0	40	36.2	35.9	13:30
80	170	63.4	11.5	40.0	40	31.5	36.7	13:55
75	169	61.5	11.5	39.0	39	26.9	37.0	14:28
70	168	60.0	11.6	37.0	38	21.4	38.6	14:40
65	167	60.0	11.8	36.5	37	15.0	38.8	14:52
60	166	57.0	12.2	35.0	35	14.0	40.2	15:10
55	166	55.6	12.3	33.0	35	13.7	42.0	15:19
50	164	55.5	12.4	32.0	34	11.2	42.1	15:35
45	164	54.4	12.5	32.0	32	11.0	43.6	15:37
40	163	54.0	12.6	30.0	32	10.0	46.0	16:07
35	162	53.0	12.9	30.0	31	9.3	55.3	16:19
30	160	52.3	13.0	29.0	31	7.6	57.0	16:22
25	159	50.6	13.1	27.0	30	5.5	61.0	16:27
20	158	50.5	13.2	26.5	29	4.2	68.9	16:28
15	158	49.5	13.3	25.0	23	3.4	70.8	17:21
10	157	48.5	13.8	23.0	20	2.0	78.0	18:06
5	156	47.1	15.0	18.0	18	1.5	85.9	18:46
0	150	44.5	15.1	12.0	13	0.0	158.5	18:50
Mean	164.5	56.9	12.5	32.7	33.6	17.8	51.9	15:31
Std. Dev.	6.2	7.6	1.1	7.7	8.8	16.2	23.2	1:44
Sample	54	53	52	53	52	52	52	49

18 YEAR OLD BOYS

PERCENTILE	HEIGHT (CM.)	WEIGHT (KG.)	AGILITY (SEC.)	SIT AND REACH (CM.)	SIT-UPS (1 MIN.)	FLEXED ARM HANG (SEC.)	SKIN-FOLD (MM.)	METER RUN (2400 M.)
100	190	99.5	9.2	50.0	70	122.0	18.7	9:17
95	185	90.1	9.4	46.0	59	84.0	21.6	9:34
90	183	82.6	9.5	44.0	54	75.0	22.0	9:45
85	182	80.5	9.7	41.0	52	72.0	22.8	10:16
80	180	77.6	9.8	40.0	50	64.4	23.2	10:27
75	179	76.0	9.8	38.0	49	61.0	24.5	10:52
70	178	74.0	9.9	37.0	49	60.5	25.8	11:01
65	178	72.5	10.0	36.0	47	57.5	26.4	11:14
60	176	71.0	10.2	35.0	46	56.0	28.1	11:24
55	176	70.0	10.3	34.0	45	55.2	29.4	11:33
50	176	69.5	10.4	33.0	45	54.9	29.9	12:05
45	175	67.5	10.4	33.0	43	53.0	31.3	12:14
40	174	65.5	10.4	32.2	42	51.2	32.0	12:25
35	173	64.0	10.6	32.0	41	49.6	36.0	12:44
30	173	63.5	10.7	29.0	40	48.5	37.4	12:55
25	172	62.0	11.3	29.0	39	45.7	38.0	13.02
20	171	61.3	11.3	25.0	38	37.6	46.7	13:56
15	171	60.4	11.4	23.0	36	34.9	48.3	14:48
10	170	57.0	11.7	23.0	33	28.7	51.0	15:32
5	165	55.1	12.4	16.0	29	25.0	62.1	17:06
0	160	52.7	13.2	13.0	15	14.0	102.0	18:18
Mean	175.7	69.9	10.6	33.0	44.1	54.8	35.2	12:23
Std. Dev.	5.7	10.3	0.9	8.4	7.0	19.4	15.5	2:12
Sample	65	66	65	64	66	65	66	67

APPENDIX F

CORRESPONDENCE

November 24, 1976

TO: SUPERINTENDENTS OF SELECTED SCHOOL
DIVISIONS AND SCHOOL DISTRICTS

FROM: CONSULTANT SERVICES (PHYSICAL EDUCATION)

SUBJECT: PHYSICAL FITNESS AND PARTICIPATION SURVEY

The Minister of Education recently announced the Department's intention to conduct a Physical Fitness Survey during the current school year. The survey, including physical fitness testing of a variety of components, will involve students in all age groups, from a sampling of Manitoba schools. The primary purpose of the survey is to determine present physical fitness levels of Manitoba youth, and to establish Manitoba physical fitness norms, which may be used for comparison purposes in the future.

A number of school divisions and districts are included in the sampling. The survey will involve anywhere from one to three schools in each selected division and district, depending upon the grade levels contained within a given school. Each school sampling will include a variety of classes selected by grade levels. Please refer to the appended Physical Fitness Testing Schedule, which includes information regarding the testing dates, schools to be tested and the sampling to be extracted, in some cases the entire school.

The physical fitness survey and testing will be carried out in two parts. The first part will involve the gathering of data related to student participation in physical activity, lifestyle patterns, approximate academic ranking and physical fitness performance in a selected number of activities, excluding the cardiovascular. The second part of the test will involve the cardiovascular portion (i.e., running; 800 meter: K-3, 1600 meter: 4-6, and 2400 meter: 7-12) and will take place in the out-of-doors some time next spring. The same students and schools will be notified well in advance when to expect the testing team for the cardiovascular portion.

Hopefully, local staff members will assist the testing team as necessary. Staff assistance should enable teachers to obtain complete information and understanding of all aspects related to the testing program, and should prove useful in any subsequent follow-up activity on a school or divisional basis, which the local authority may decide on.

...2

The actual testing, hopefully, will not disrupt normal school routine, since only one class, at any one time, will be tested (approximately 40 minutes per class, exclusive of the running). The follow-up running portion of the survey will require only a minimal amount of time in any given school, probably no more than one-half day next spring.

Attached to this letter, for your information, are the following:

1. A sample of the Physical Fitness and Participation Survey
2. A listing of the schools geographically selected for the sampling, including proposed dates for testing.
3. A listing of the members of the testing team from the Department

For your information, pilot testing has been successfully completed in three school divisions (St. James, St. Boniface and Fort Garry). The testing team now feels that the procedures to be employed during the regular testing operation are sufficient to retrieve valid information. Further adjustments may be made as necessary, and as determined by the testing unit.

Your cooperation, as well as that of your principals and teachers in the test schools, will be greatly appreciated, to insure that this most worthwhile project is successfully completed.

If you, or principals of the schools selected, have any questions, concerns regarding the project, or do not wish to participate, please get in touch immediately with myself or one of the consultants listed on the attached page.

Thank you in advance for your anticipated cooperation.

Sincerely yours,

R. LaPage, Consultant,
Physical Education

RL/jf

Enclosures

PHYSICAL FITNESS TESTING SCHEDULE

DATE	SCHOOL	K	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Nov. 23	Ralph Brown	29	35	55	24	47	38	48							266
24	Lansdowne	49	56	46	57	57	62	70							397
30	Robertson	28	28	34	44	31	36	46							247
Dec. 1	Sisler								60	66	55	60	76	82	399
2	West Kildonan											63	77	86	226
7	Munroe								60	66	60				186
8	Portage (Prince Charles)	26	25	23	22	27	23	22	60	66	55				349
9	Portage Collegiate											60	76	82	218
14	Riverton (Elem.)	24	40	23	46	35	49	40	48	41					346
15	Riverton (Coll.)										42	41	34	33	152
16	Inwood (a.m.)		6	12	10	18	13	14	17	14	10				114
Jan. 5	*Roblin (Int.)	70	76	62	84	96	63	73							524
6	*Roblin (Goose Lake)								60	60	61	60	61	64	366
11	Pinawa (Sec.)							66	39	57	42	41	39	39	323
12	Pinawa (Elem.)	33	23	31	31	22	35								175
13	*Vita (Shevchenko)		47	52	50	44	54	52	60	65	55	56	38	34	607
18	*Glenboro	18	23	21	21	25	23	28	19	36	45	55	51	40	405
19	*Hartney (Elem.)	20	26	20	22	20	19	23							150
19	Hartney (Coll.)								25	34	34	27	31	36	187
20	Elkhorn	19	26	26	21	23	18	30	22	19	31	18	12	8	273
24	Gypsumville	4	4	3	7	5	8	9	7	4	13	12	12	4	92
25	Grand Rapids	30	24	32	32	28	31	43	30	24	23	13			310
31	Norway House:														
Feb. 1	Rossville	30	40	27	25	20	34	19	44	24	55	54	33	27	432
2	Jack River	32	80	56	58	28	60	33	41	38					426
8-9	Leaf Rapids	61	72	63	42	56	50	43	43	30	33	19	18	15	545
10	Altona (New Hope)		10	8	7	8	9	7	11	8					68
10	Altona (W.C.Miller)										55	60	76	82	273
15	The Pas: Kelsey	98	62	97	109	81	71	59							577
16	Scott Bateman								60	60					120
17	Margaret Barbour										55	60	76	83	274
22	*Thompson (Deerwood)	56	63	68	50	62	64	53	58						474
23	*Thompson (R.D.Parker)									60	55	60	76	85	336
24-25	*Wabowden	37	34	41	38	31	40	22	36	28	21	39	14		381
	TOTAL	664	800	800	800	754	800	800	800	800	800	800	800	800	10,218

CONSULTANT SERVICES (PHYSICAL EDUCATION)
MANITOBA DEPARTMENT OF EDUCATION
411 - 1181 Portage Avenue
Winnipeg, Manitoba
R3G 0T3

PHYSICAL EDUCATION CONSULTANTS:

Dick LaPage	786-0268
Fred Gutoski	786-0269
Bob Webster	786-0264
Dave Fitzpatrick	786-0173
Elaine Andrew	786-0264
Dawn White	786-0173

March 22, 1977

TO: Principals of Schools Participating in the Physical Fitness Survey

FROM: Consultant Services (Physical Education)

SUBJECT: Phase II - Physical Fitness and Participation Survey

Phase II of the Physical Fitness Survey and Testing Program will be conducted during the months of May and June. As you will recall, the first phase of the Testing Program involved the collection of some data related to student participation, lifestyle patterns and fitness performance. Unfortunately, during Phase I of the survey, we were not able to collect all of the required data. In Phase II, we hope to continue with the data gathering and test the cardiovascular performance of students who participated in Phase I, and any other students who may wish to participate in the run.

The cardiovascular testing portion of the survey should require a minimal amount of time to complete. For your information, the various age levels will be asked to run (run-walk, if necessary) the following distances:

- Ages 5 - 9, inclusive	800 meters
- Ages 10 - 12, inclusive	1600 meters
- Over 12 Years of Age	2400 meters

Running, to test the cardiovascular performance of the students, will be conducted in the out-of-doors, and should be done on an oval of approximately 400 meters. We would ask that your physical education staff measure out and prepare an area of this particular shape and dimension. Accuracy is of utmost importance in measuring the 400 meter oval, to insure validity.

The oval noted above could be measured out and marked on a variety of surfaces; i.e., existing track area or grassed area. Hard surface or spongy areas should be avoided. Running area should be level.

Although the testing team is aware that a variety of surfaces will create some difference in time, the above suggested surfaces will provide some consistency.

All students and staff who will be running are asked to dress appropriately for a run. Shorts and T-shirts are preferred; however, as long as movement is not hampered and proper body ventilation is provided, a variety of attire may be considered.

In the event of inclement weather, it may be necessary to postpone the testing in a given school on a specific date. However, these adjustments will be made by the testing team in consultation with the schools as we work through our schedule.

The administrative procedure for Phase II is relatively simple, and testing will be done on a similar basis to Phase I. Classes, or a combination of classes, will be asked to come to the running area for a relatively short time for testing. The exception may be the high school level, where it will be necessary to ask all Grade 10 - 12 students to come to the gym for an orientation period, following which record sheets will be distributed and the testing completed. We hope that you will be flexible and bear with us whenever we encounter problems of this nature.

For your information, we have enclosed a comprehensive listing of the Physical Fitness Test Schools and the dates which we anticipate completion of Phase II. If there is any conflict in respect to the attached schedule, or if you have any other questions regarding Phase II, please get in touch with the contact person listed opposite your school's name.

Your cooperation in assisting us to complete Phase II is greatly appreciated. Thank you.

Sincerely,

R. LaPage, Consultant,
Physical Education

RL/jf

Enclosure

P.S. Copies of this correspondence are being sent to Superintendents and Supervisors.

NOTE: Please pass along a copy of this correspondence to the physical education staff in your school.

PHYSICAL FITNESS TESTING SCHEDULE

Date	School	Testing Team Contact
Tuesday, May 3	Lansdowne School, Winnipeg	Dick LaPage
	Goose Lake H.S., Roblin	Fred Gutoski
	Roblin Elementary	Dave Fitzpatrick
	Glenboro School	Bob Webster
Wednesday, May 4	Robertson School, Winnipeg	Dick LaPage
	Portage Collegiate	Fred Gutoski
	Prince Charles School (Portage)	Dave Fitzpatrick
	Hartney (Elem. & Collegiate)	Bob Webster
Thursday, May 5	Ralph Brown School, Winnipeg	Dick LaPage
	Vita Schools	Fred Gutoski &
		Dave Fitzpatrick
	Elkhorn School	Bob Webster
Tuesday, May 10	Gypsumville School	Fred Gutoski
	Sisler High School	Bob Webster
	Kelsey Elem. School, The Pas	Dick LaPage
	Scott Bateman, The Pas	Dave Fitzpatrick
Wednesday, May 11	Grand Rapids School	Fred Gutoski
	West Kildonan Collegiate	Bob Webster
	Kelsey Elem. School, The Pas	Dick LaPage
	Margaret Barbour Coll., The Pas	Dave Fitzpatrick
Thursday, May 12	Inwood School	Bob Webster
	Munroe Jr. High, Winnipeg	Dave Fitzpatrick
	Riverton Elementary	Dick LaPage
	Riverton Collegiate	Fred Gutoski
Tuesday, May 17	Bannatyne School, St. James	Dick LaPage
	Beaumont School, Assiniboine South	Bob Webster
	Deerwood School, Thompson	Fred Gutoski
	R. D. Parker, Thompson	Dave Fitzpatrick
Wednesday, May 18	Brooklands Jr. High, St. James	Dick LaPage
	Westdale Jr. High, Assiniboine South	Bob Webster
	Deerwood School, Thompson	Fred Gutoski
	R. D. Parker, Thompson	Dave Fitzpatrick
Thursday, May 19	Phoenix School, Headingley	Bob Webster
	General Byng, Fort Garry	Dick LaPage
	Wabowden School, Wabowden	Fred Gutoski &
		Dave Fitzpatrick
Tuesday, May 24	Deloraine Elementary	Dick LaPage &
		Bob Webster
	Melita School	Fred Gutoski &
		Dave Fitzpatrick

Date	School	Testing Team Contact
Wednesday, May 25	Deloraine Collegiate	Dick LaPage & Bob Webster
	Melita School	Fred Gutoski & Dave Fitzpatrick
Thursday, May 26	Waskada School	Dick LaPage
	Tilston Elementary	Bob Webster
	Pierson School	Fred Gutoski & Dave Fitzpatrick
Tuesday, May 31	St. Alphonse Elementary	Dick LaPage
	Mariapolis School	Dick LaPage
	Ste. Marie School, Bruxelles	Dick LaPage
	Somerset Collegiate	Fred Gutoski
	Dandurand School, Haywood	Fred Gutoski
	Swan Lake School	Dave Fitzpatrick
	St. Leon Elementary	Dave Fitzpatrick
	Richard School, Somerset	Dave Fitzpatrick
Wednesday, June 1	Notre Dame Elementary	Fred Gutoski
	Notre Dame Collegiate	Dave Fitzpatrick
	St. Claude School	Dick LaPage
Tuesday, June 7	W. C. Miller Collegiate, Altona	Dave Fitzpatrick
	General Vanier, St. Boniface	Dick LaPage
	Jack River School, Norway House	Bob Webster
	Rossville School, Norway House	Fred Gutoski
Wednesday, June 8	Pinawa Secondary School	Dick LaPage
	Pinawa Elem. - Lewis - a.m.	
	- Gilbert - p.m.	Dave Fitzpatrick
	Rossville School, Norway House	Fred Gutoski
	Jack River School, Norway House	Bob Webster
Thursday, June 9	La Salle School	Fred Gutoski
	Beliveau Jr. High, St. Boniface	Dick LaPage & Dave Fitzpatrick
	St. Avila School, Fort Garry	Bob Webster
Monday, June 13	Leaf Rapids	Fred Gutoski
Tuesday, June 14	Leaf Rapids	Fred Gutoski
Wednesday, June 15	Leaf Rapids	Fred Gutoski

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5. Presidents' Council on Physical Fitness and Sports, The Totality of Man, Physical Fitness Research Digest, Series 1, No. 2, October, 1971, Washington.